A Lecture
ON
MODERN METHODS IN THE DIAGNOSIS OF PHTHISIS.*

BY
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I HAVE selected the subject of modern methods in the diagnosis of phthisis with two very definite ideas in my mind. First, I find that some of them are credited with a value to which they have no claim; or their value is misunderstood or exaggerated, greatly to the detriment of older and more reliable methods of diagnosis. Secondly, I find that others are subjected to a neglect they do not deserve, with the result that valuable evidence in cases of difficulty is left out of consideration. In the diagnosis of phthisis at a really early stage we cannot afford to leave any witness unquestioned. Every piece of evidence has its due importance, but above all is it vital that we should appreciate as nearly as may be what weight to attach to each kind of evidence, and that we should not be deceived by the glamour of novelty, nor, on the other hand, put off by the difficulty of mastering a new technique.

The first of the modern methods I am going to bring to your notice first saw the light in the year 1863! It is true that it had not reached adult proportions till some quarter of a century later—namely, 1889—but my claim to regard it as a modern method depends on my belief, possibly unfounded, that not a dozen of my audience have yet made use of it in any regular manner. I refer to topographical percussion, a method, I may say at once, of great help in the diagnosis of early phthisis, and also of commencing disease at the apex of the second lung where the first is already involved.

Topographical Percussion.

In its best known form topographical percussion is associated with the name of Krönig, and though attempts were made to map out an anterior and posterior apical resonance before his time, the credit of fully describing the boundaries of the apical resonance certainly belongs to him. He was the first to join the anterior and posterior areas of resonance by a narrower "isthmus" over the shoulder. The method of finding Krönig's area consists in mapping out, by the highest possible percussion, the band of resonance passing from the front to the back of the chest over the shoulder on each side. Percussion may proceed either from dullness to resonance, or vice versa; the end of the finger only must be used, the area marked with a skin pencil and carefully verified after it is marked. Having marked out both shoulders, the resulting figures are compared and measurements taken at the isthmus, and perhaps elsewhere. Normally the two sides correspond, save in cases of chest deformity. Lack of correspondence points to a one-sided lesion, which may or may not be phthisis.

Now the changes we find in early phthisis are either a blurring of the outline of Krönig's area on one or other side, leading later to the appearance of a band of relative impairment, or a retraction of the apical resonance as a whole. It will be remembered that Birch-Hirschfeld, Schmorl, and others, found the earliest lesions in phthisis in the medium-sized bronchi running to the apex; disease leads to blocking and collapse of lung, and infiltration of the collapsed area follows. In some cases, no doubt, infiltration keeps ahead of collapse, and in a few apical infiltration is itself the primary lesion. Topographical percussion seems to bear out this view of the common march of events in apical disease. After the size and shape of the two apical areas have been compared, the next point is a careful comparison of their resonance to light percussion, and this is conveniently done in finger-breadths above the clavicle.

Now Krönig's area is easy to map out and the information we get from it is often valuable and decisive, but it is not, as Goldscheider objected, the actual lung apex we are mapping out, but only an artificial area of resonance projected to the surface from points mostly on the outer side of the apex. Goldscheider set himself to percuss the lung apex itself in front and behind, and by this means we have another method of topographical percussion. The apex in front lies between the heads of the sterno-mastoid muscle, but as it rises little more than a finger-breadth above the clavicle—Stuart Dickey made it 2.2 cm., or nearly an inch—and as the inner end of the clavicle presents no good point for taking a measurement, I do not recommend you to do more than note the presence of resonance in this area, and perhaps compare it with that on the opposite side. I say "perhaps" because the ability to do so correctly lies partly in the arrangement of the lower heads of the sterno-mastoid muscle. The space between them, and the prominence of one or other head varies greatly in individuals, and it is only when percussion can be made directly backwards, to avoid tracheal resonance, that the lung apex can here be reached.

Behind, the matter is different; the apex lies close to the spine, but it is thickly covered by muscle and protected by the first rib and lateral process of the vertebra. Nevertheless, it is possible to determine the height of the actual apex at this point, and this should be done, the normal resonance rising here to the spine of the first dorsal vertebra.

So much for topographical percussion—Krönig's method, easy to apply and accurate, giving, indeed, a magnified view of the lung apex; Goldscheider's, difficult in practice, of little value in front, but of distinct worth behind. What do we learn from topographical percussion? Not the presence of phthisis any more than this can be deduced from ordinary percussion used alone; but the presence of:

1. Equality on the two sides both as to size and resonance, evidence of health.
2. Inequality of size: shows retraction of an apex, over-expansion of the opposite apex, or both together.
3. Equality of size, but blurring of outline passing on to production of bands of relative impairment: generally points to infiltration with little or no retraction in early phthisis.

These points give us valuable information for further investigation. We have interviewed a useful witness; we record his evidence and proceed.

Tidal Percussion.

Before leaving topographical percussion, however, I may well add a word about tidal percussion, a method designed to discover the movements of the lungs, whether at apex or base, during deep respiration. At the apex I have found the method of but slight value, for the movement here is slight, and may be none at all in health. At the base useful information as to pleural adhesions is obtainable, and the presence or not of such adhesions may be of value in a diagnosis between apical collapse accompanying nasal obstruction, and somewhat similar signs of tuberculous origin. Tidal percussion is closely comparable to Williams's diaphragmatic and Litten's shadow-phenomena, and the results subject to similar interpretation.

Radiography.

The next point I should like to bring to your notice is the value of the x rays in the diagnosis of phthisis. Not only do they give us help in cases of difficulty, but they have to some extent altered our views with regard to the disease. For a long time the teachings of von Behring, Paul Römer, and others, that phthisis was only the final stage of a childhood infection, and that this smouldering disease and the immunity it caused were the conditions which made a chronic pulmonary tuberculosis possible, were hardly tolerated by most of us. Now the skiagram seems to bear out the correctness of this view. For we find thereby not only that old disease of bronchial and pulmonary glands is common or even the rule, but also that in cases of phthisis such disease appears to spread round the bronchial branches into the lung, especially towards the apex, and that fresh outbreak tends to occur

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in the neighbourhood of these strands. The implication of apical bronchi so commonly observed, and especially of the posterior branch, as stereoscopy has demonstrated, falls into line with the teachings of Birch-Hirschfeld already quoted, and this no doubt is quickly followed by conditions of partial collapse which allow recognition of the disease at an early stage on the surface.

Before giving any opinion on skiagrams in cases of chest disease, and their probable significance, I would warn you to study carefully the picture presented by the normal chest. You must note the "hilus shadow" caused by the large vessels and perhaps the bronchi, and deepened where these cross one another on the ribs or are viewed tangentially. Calcareous or fibrosed glands must be looked for, but their presence need not be viewed askance. Arborization of vessels and tubes may be seen even to the periphery of the lung, and especially visible are branches running to the apex and also those to the base. Shadowing of the apex and outer boundaries of the lungs caused by thick muscle layers and the inner border of the scapula are to be expected, and these may be thicker on the right side. Fat obstructs the rays, as do also the breasts in women, and the diaphragm is normally somewhat higher on the right side. Not only must all these things be allowed for, but also temporary differences between expansion of the apices of the two sides and also inequalities due to differences of technique, such as position of plate, duration of exposure, hardness of tube, and subsequent development of the photograph.

What we generally see in an early case of phthisis may be grouped as follows:

1. Old disease at the hilum of the lung in most cases; Ziegler and Krause, Stürtz and others declare they have rarely or never seen apical disease without hilum disease of the same side.

2. Attention must be directed to an imaginary triangle, bounded by the clavicle above, the mediastinum within, and, below, a line joining the hilum to the shoulder, for in this space the earliest signs of activity are usually observed. As a rule, two shadows of vessels and tubes will be clearly seen running to the apex, and it is around these that changes are most early seen. In some cases these represent peribronchial tuberculosis, but in others it seems to me quite possible that the shadows are only those of dilated vessels directed to an apical inflammation. Where the disease tends to fibrosis, thickened strands form the main feature; where an acuter process is present irregular flecks of bronchopneumonia in the lung tissue, growing and coalescing, may be seen.

It happens in some cases that disease of unexpected amount is found by the *x* rays where surface signs were not discovered. It must not, therefore, be supposed that radiography can in any way replace ordinary examination. Where the earliest changes consist in an exudative process round a few scattered tubercles, the stethoscope has ample warning, while the skiagram shows nothing. Moreover, disease of ascending bronchi, though it appears to the radiographer to be far from the surface, yet soon causes slight impairment and stethoscopic signs from interference with blood and air supply. You cannot long interfere with the lines of communication without its being apparent at the distant front! In addition, the *x* rays do not, as a rule, tell you much about the actual apex of the lung, and they only give partial information as to activity of the process visualized. They should be used in conjunction with other methods, and are then of the highest utility. They may confirm the diagnosis in a doubtful case, give great assistance in the determination of the extent of disease, help to show whether the other side is free—for the spread on the second side invariably starts deep in the lung and may be appreciated earlier in a skiagram than by auscultation and percussion.

Tuberculin.

We now come to tuberculin diagnosis, a matter round which no little controversy has raged. The facts about the value of tuberculin are nevertheless pretty clear, and their interpretation should be open to but little doubt. Two points need to be clearly separated in the use of tuberculin at the outset:

1. The detection of tuberculous infection.
2. The diagnosis of active disease.

1. *Tuberculous Infection.*—The tuberculin reaction is truly specific, and there is no other comparable test of tuberculous infection. As you know, its most delicate application (intracutaneous and subcutaneous local tests apart) is in the cutaneous or von Pirquet test, and to this nearly all adults react. Its utility is confined to the first few years of life, when infection generally spells active disease, and undiluted tuberculin should be used, since the stronger the solution the more inclusive the test.

2. *Active Disease.*—For the detection of active disease tuberculin has had, so far, only partial success, and that largely because its limitations have not been clearly understood. It would have seemed clear to most that at any rate the ordinary cutaneous test, which discovers tubercle in about 90 per cent. of healthy 14-year-olds and in nearly all adults, would hardly be claimed as a test of clinical disease. Yet it is only some weeks since this claim was put forward by a writer in one of our best known medical periodicals.

The reaction to tuberculin subcutaneously by fever and other disturbance is, as you know, not infrequently relied upon by practitioners in deciding the diagnosis of phthisis in a doubtful case. And yet, on inquiry, what are the facts in regard to tuberculin given subcutaneously in the usual doses? The well-known experiments of Franz on healthy Bosnian soldiers showed that 61 per cent. reacted to doses up to only 3 mg., whereas, after a year's stay in Vienna, 76 per cent. gave positive reaction. Beck, among 2,137 convalescents, found 54 per cent. react to injections of 1, 5, or 10 mg., and Fränkel obtained similar results. Obviously a test for active tubercle which gives such result among the clinically non-tuberculous is utterly worthless. A few days ago I came across a very interesting communication to a discussion by Dr. Hamman, of the Johns Hopkins University. It is so much to the point that I will quote it. He says:

> We had innumerable cases of early pulmonary trouble in those days, many more than you could find on our records now. We were further intrenched in our confidence by the confirmatory evidence lent by tuberculin. To give added assurance we administered tuberculin to these patients subcutaneously. Of about 35 patients so tested at Eudowood, all but one reacted. Slight physical signs and the tuberculin reaction played so smoothly into one another's hands that we at last became suspicious and began to give tuberculin indiscriminately to as many patients as we could control, and, to our dismay, found that about 60 per cent. of all individuals react, whether they are suspected of having tuberculosis or not.

We may take it, then, that a positive febrile reaction to tuberculin gives little evidence either way in the diagnosis of phthisis. True, the amount of sensitiveness is of some importance, but time does not permit me to go into this point. On the other hand, a negative result to subcutaneous injection is of very definite value in excluding active disease, and this alone makes the test of considerable value in properly selected cases. Hammer among sanatorium cases got 7.4 per cent. of such negative results. Hamman on similar material found that he got definite evidence from subcutaneous injection of tuberculin in 26 among 75 suspected cases; 12 were negative, and 14 gave a focal reaction.

This brings us to the other element of the subcutaneous test which is of distinct value in the diagnosis of phthisis. The negative febrile and the positive focal reaction are our two stand-bys in tuberculin diagnosis! The focal reaction shows itself in symptoms—cough and increased expectoration, pain or sense of oppression in the chest, and in the appearance or increase of physical signs, whether to percussion or auscultation or both. Its value is not only that it is truly specific and points clearly to a tuberculous process, but also that it definitely indicates the position of disease in the lung. There is also good evidence to believe that a focal reaction gives evidence of activity, or at any rate of disease which is far from obsolete and may well become active. The frequency of appearance of a focal reaction to injected tuberculin varies enormously with the observer; it needs considerable skill to detect its appearance in some cases; moreover, it is probably not difficult to imagine its presence when attention is concentrated on it.

Otten, working under Professor Romberg of Tübingen, records 324 cases, tested with a view to focal reaction. Of these, 60.8 per cent. gave a focal with a general reaction,

7.4 per cent. a focal reaction alone, and 23.8 per cent. a general reaction alone. Walterhöfer obtained a focal reaction in 54.5 per cent., Hamman in 36.5 per cent. Other observers have found it more seldom, A. Fränkel in only 10.8 per cent., showing how largely the personal factor enters into its discovery. No uncertain signs must be accepted as evidence of its presence.

The question which especially assails us with regard to the focal reaction is that of its possible danger. This can only be insured against by the most scrupulous observation of all the rules and contraindications which experience of the method have indicated. Especially important among these are two: First, never to give subcutaneous tuberculin for diagnosis to a febrile case, and this rule is the one most sinned against, with disastrous results. The writer has several times seen disease lighted up and rendered hopeless by tuberculin needlessly given to cases of obvious febrile phthisis. The second rule is never to increase the dose, but only to repeat it, where a doubtful reaction has been obtained and it is decided to test the matter further. If, for instance, no reaction occurs to doses of $\frac{3}{10}$ mg. and 1 mg., and a doubtful one to 5 mg., instead of going on to 10 mg., the 5 mg. should be repeated, or even a smaller dose given, when the sensitiveness produced will be amply sufficient to secure a definite result in the presence of active disease.

Tuberculin should not be given subcutaneously where the diagnosis can be made without—meaning where the diagnosis can be made without by those with special knowledge and skill, for quite obvious disease may be overlooked by those whose skill is not kept up to date. If this rule were followed out, the test would remain, where it should be, in the hands of those of special training, and specially qualified both to discover and to interpret any reactions which may appear. It would be used in but a few selected cases, and the risks would disappear. Bardelier and Roepke have given ten to twelve thousand injections without any evidence of harm, and it has proved harmless in the hands of other experts of similar experience. Take it out of these hands, and it becomes a fallacious and dangerous instrument.

Quantitative Cutaneous Test.

I have already mentioned that the amount of sensitiveness to tuberculin is of some moment, though, unfortunately, it can only tell us of probabilities more or less high. Of recent years a method of measuring sensitiveness has been applied to the skin reaction, and designated the "quantitative cutaneous test." This is most conveniently applied after the method of Ellerman and Erlandsen, where four simultaneous scarifications on the skin are treated with four dilutions of tuberculin rising in geometric progression. As a result of this papules develop whose diameter is said to rise in arithmetic progression from lowest to highest. From the size of these papules and the difference in size between them, there can be calculated the lowest dilution of tuberculin to which a particular patient will react, and the reciprocal of this represents his sensitiveness. Thus, a patient who reacts to 1 per cent. tuberculin has a sensitiveness = 100, one who reacts to one-thousandth tuberculin has sensitiveness = 1,000.

This method has points to recommend it, but it is unfortunately open to certain fallacies. The technique presents much room for error, since differences in the absorption of tuberculin are apt to occur from differences in depth of scarifications, quantity of tuberculin left on the skin, time it is allowed to dry, and so on. Above all is it easy to mistake the "traumatic" reaction occurring after the use of the von Pirquet scarifier for a slight real reaction to the lower dilutions. To avoid this error, I am accustomed myself to make a fifth control scarification beside the lowest one on the arm, and consider this essential to the proper interpretation of the results.

Given the individual skin sensitiveness, we are provided with information whose value is still very difficult to gauge and apt at times to play us false. Skin sensitiveness, like general sensitiveness to subcutaneous tuberculin, is generally higher in active disease than in the presence of an obsolete or healed focus, but the line is difficult to draw, and there will always be exceptions both above and below it. The figure 100 is usually put as the sensitiveness above which active disease is usually found—figures below this are generally said to indicate its absence. But Hamman and Wolman found 16 per cent. of the non-tuberculous sensitive to 1 per cent. tuberculin; and 44 per cent. of cases of incipient tubercle negative to 1 per cent. tuberculin—that is, with a sensitiveness below 100. These figures fall into line with my own experience of the quantitative cutaneous method, and I do not think it wise to pin much faith to its findings at present. At the same time there is value in the test at the further ends of the scale—a very high sensitiveness on the one hand as evidence of disease, and a very low one on the other in the absence of other explanation, as evidence of its absence. We are, however, working with probabilities only and must view all such evidence in the light of information obtained from other sources.

Laboratory Methods.

First of all comes the sputum examination and the advances that have been made of late years in its technique. The introduction of the antiformin method by Uhlenhuth was the most notable achievement. By this other less resistant organisms and organic material are brought into solution, and the tubercle bacilli collected by sedimentation. Then comes the discovery of Much, that there exists a granular form of tubercle bacillus which does not retain the stain in Ziehl-Neelsen's method, and requires a modification of Gram's staining to demonstrate its presence. Roepke found 12 per cent. failures to the acid-fast method, with positive results in all these to Much's method, and he thinks both must be used where certainty is required. Beyer had 4 cases among 78 where Ziehl-Neelsen failed and Much succeeded. A further novelty in sputum examination concerns the search for the tubercle bacillus by animal experiment in cases where sputum examination proves negative. Not only can antiformin be used before injection to render the sputum less septic to the guinea-pig, but also it is of value to dissolve the tissue pulp in searching for the bacillus in the inguinal glands. Further, Bloch, by bruising the glands before injection, has succeeded in so lowering their resistance that bacilli can be demonstrated in them as early as fourteen days after injection in a positive case.

Another method, which may become more useful than was expected, is the examination of the sputum for *albumin*. By this means it is determined, not whether the disease is phthisis or some other lung disease, but whether the sputum is only bronchitic or reveals a pulmonary origin. This may give valuable information in a differential diagnosis between phthisis and an apical bronchial catarrh of simple causation. Further, a cytological count of the sputum may be of assistance, since it has been shown by Wolff-Eisner that a large preponderance of mononuclear cells (called by him lymphocytes, but alveolar cells by French observers) occurs in early phthisis, and may focus suspicion on a case before the tubercle bacillus has been discovered. Where this fails is in the fact that in most really early cases no true lung sputum exists, but not all cases requiring diagnosis are at so early a stage as this.

Some Newer Methods.

The examination of the blood for tubercle bacilli has hardly yet reached the stage of practical utility, though it may do so in the near future. Complement deviation or Wassermann's reaction appears to be of little use in diagnosis, as positive results are obtained in cases of old healed as well as active disease. Much more may be said for *tuberculo-opsonic* determination if the indices are done by a bacteriologist of known skill.

A series of indices taken under different conditions are needed for the diagnosis of phthisis, or other form of autotoxic tuberculosis, the best plan being to induce a definite autoinoculation and take the blood at certain times before and after. Walking exercise may sufficiently autoinoculate some patients, but I have found it fail to give sufficiently marked results, and more violent exertion may be required. Most certain is the use of a suction mask, for which purpose an ordinary ether mask may serve a temporary need; with this a few minutes of forced respiration will give the required result. The index should be taken before this autoinoculation with the patient at rest, about an hour after the mask, and again six hours, and preferably also twelve hours later. If the

case is tuberculous, a fluctuation of the index follows, and, according to the amount of the autoinoculation, the negative phase comes late or early (or is not found at all), and is, finally, followed by a positive phase. The number of examinations and their spacing are timed to hit off, if possible, both negative and positive phase, so that the double evidence of disease may be obtained. The evidence from opsonic examination must be viewed in just proportion with evidence derived from other sources. Not too much reliance should be placed on fluctuations of slight extent, for experimental error is large, probably 20 per cent., even in the most competent hands.

And now I will end my lecture with a few words of advice on general lines. To begin with, I would remind you that phthisis is a disease of intermittent course, that the real beginning is often passed over as an influenza or a "chill," and that it has generally advanced to quite diagnosable stages by the time the patient has discovered his symptoms. This is true, as a rule, even in cases of haemoptoic onset; even here signs are generally discoverable to skilled examination.

Secondly, I would advise you to devote all the attention you can to ordinary physical signs, especially to light percussion, and after this to auscultation. The modern methods cannot in any way take the place of physical examination, though they are most valuable aids to it. Do not, also, neglect the temperature chart, nor yet the evidence of symptoms.

Thirdly, study carefully the value of the evidence to be derived from modern methods; do not be put off by their apparent difficulty, nor misled by the glamour of their newness. Blind reliance should not be placed on any of them, any more than it should be on any single physical sign. I think we have reached a stage in the diagnosis of phthisis where a warning on this point is greatly needed: we should all like to diagnose 100 per cent. of the cases, but I fear some people are diagnosing more than this at the present time. It gets too like the old age pension in Ireland, which was said to go to fully 120 per cent. of the people over 70 years of age! Most of these modern methods give us valuable information, but this must be weighed against other information from other sources before judgement is given. If this is done, and the other methods, under modern improvements, are not put aside, it may be said that we have made considerable strides in the diagnosis of phthisis in recent years. It is, indeed, only here and there that a case is met where skilled examination is not able to decide the matter, and that fairly rapidly, one way or the other.

THE NOMENCLATURE OF TUBERCULIN DOSES.

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Whatever value we may individually attach to tuberculin in the treatment of its specific disease, there can be little doubt that it has come to stay, and however restricted its use may become in future, it is scarcely thinkable that it should again vanish from our armamentarium. Hitherto in its recent renaissance its use has been in the hands of two classes of practitioners. Firstly, a small class of specialists who have studied it exhaustively, and know everything about it that is known. Secondly, a larger class who know very little about its technique, and who use it in a rule-of-thumb manner.

Now, most of the latter are highly intelligent practitioners, but in this matter have been overwhelmed by the minuteness of the doses, and the absurd manner in which these doses have been expressed. It has been customary to take the milligram or the cubic centimetre as the unit, and the early doses have been represented as fractions having a long series of noughts, like a belated railway viaduct!

Now, it is an elementary psychological fact that the mind cannot grasp fractions so readily as multiples. We talk glibly of a million pounds, but we should all be rather staggered at the thought of a millioneth of a pound. We can all conceive of a million cubic centimetres, and the conception becomes more realistic when we think of it as one thousand litres, and when we look at one pond containing a kilolitre the realism becomes complete. But "0.000001 c.cm.," or "$\frac{1}{1,000,000}$ c.cm.," or even the much simpler form "10^{-6} c.cm.," are too unwieldy to be constantly intelligible. I wonder how many practitioners who have not been working at tuberculin or at recent mathematical problems could sit down and write off without thinking it out the decimal expression or the minus index for one-millionth. I think in many cases there would be a zero too little or too many. And it is very difficult to carry these highly fractional figures in mind. The obvious remedy is to use smaller units. All scales of weights and measures are founded on this principle, and when the conventional scale does not go far enough in any branch of work, the worker invents new measures. The millimetre used to be the limit of length, but when the microscopist found this too large for his unit, he invented a smaller one, the "micron" or μ. Now the first unit that occurs to us is the cubic millimetre, $\frac{1}{1,000}$ of a cubic centimetre, and this has already been suggested by Dr. Clive Riviere, but this is not small enough, as the millionth of a cubic centimetre has been given, and it is well to select as final unit the smallest dose likely to be given. For this unit a name must be found, and it should be an "unappropriated" Greek letter, with an associated word with meaning suitable to its minute dimensions, and so I suggest the letter ψ and the word *psilon*, which may be conveniently translated "shred," "residue," or "atom," though it occupies a big space in Liddell and Scott. Thus:

1,000 psilons (ψ) = 1 cubic millimetre (c.mm.).
1,000 cubic millimetres = 1 cubic centimetre.

Thus fractions may be obviated, the dose being given in psilons until it reaches the cubic millimetre, and then be given in cubic millimetres until it reaches the cubic centimetre.

Another suggestion is the abolition of the absurd English practice of speaking of the dose of TR in terms of milligrams of the original bacillary substance, when three-fifths of that substance is no longer present. It is just like speaking of a dose of liq. strychninae, not as 5 minims, or as $\frac{1}{20}$ grain, but as the original weight of nux vomica bean from which this quantity of liquor had been made. If, however, clinicians still wish to prescribe TR in terms of the weight of the original bacillary substance, it would be still practicable to use the symbol ψ for 100,000 milligrams of original bacillary substance of TR, and its quantity would be the same as if the dose had been expressed in the Continental fashion—that is, in cubic centimetres of tuberculin fluid.

In the method of prescribing tuberculin which we have adopted at the General Hospital, Wolverhampton, we use the psilon unit, and the cubic millimetre unit. And the cubic centimetre unit is only used when the dose has attained unity or beyond. If this method were generally adopted it would render the use of tuberculin more popular and more intelligible to busy practitioners, who do not give their whole time to unravelling these ponderously expressed fractions.

The Third International Conference on Cancer recently held at Brussels decided that its next meeting should be held at Copenhagen in 1916.

A Yellow Fever Bureau *Bulletin* states that a report by Seidelin on the subject of vomiting sickness in Jamaica will soon be published. Scott has recently shown conclusively that at least a certain number of cases of so-called vomiting sickness are really cases of cerebro-spinal meningitis, as had been previously suspected but never satisfactorily demonstrated; secondly, it is stated that Seidelin's investigations have not resulted in establishing the identity of vomiting sickness with yellow fever. For practical purposes it is suggested that the islands, meaning essentially the seaports and the commercial highways, are free from yellow fever, though it is admitted that endemic foci may continue to exist in remote parts of the interior, the prevailing forms of the disease probably being mild. The possibility of spontaneous cases occurring occasionally cannot be excluded. It can, however, be definitely stated that yellow fever is not prevalent in Jamaica to any considerable extent.

A DIFFICULT DIAGNOSIS IN AN INSANE PERSON.

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It is always a difficult matter in the insane to obtain reliable, even if any, subjective symptoms of diseases, and the diagnosis of abdominal complaints among this class becomes a matter of considerable uncertainty as well as of anxiety. The following case will illustrate my statement:

A male patient, aged 48, blind from double cataract since an early age, 5 ft. 8 in. in height, 11 st. 7 lb. in weight on admission, was under continuous treatment in the Claybury Asylum for about sixteen years, suffering from maniacal excitement with delusions of persecution, and being also a case of congenital weak-mindedness.

He was taken ill somewhat suddenly and abruptly on May 21st last, and died on May 23rd—that is, in less than three days. The family history records eccentricity and nervousness amounting to actual insanity, although the father was a man of distinction, having attained the position of surgeon-general in the British army. There is no inheritance recorded of abnormal bodily states.

For the past few months the patient had been slowly losing flesh, 2 st. between January and April, but no organic condition was discovered to account for this. His first symptom, which came on rather abruptly, was the complaint of a vague pain "under the ribs," amounting, on pressure with the fingers, to severe abdominal tenderness, especially so under the costal arch of both sides. On palpation there was marked rigidity of the left rectus abdominis.

On May 21st he was carried from his ward into the infirmary upon a stretcher; his pulse was 112 and feeble; he perspired freely, vomited some altered food, and was in a somewhat collapsed state, appearing to suffer much pain. Hot water bottles were placed in his bed and turpentine stupes applied to the abdomen; also, as the patient refused a soap and water enema, a calomel tabloid of 5 grains was given, but no action of the bowels followed then or afterwards. He passed a restless night, and the next day, as far as could be ascertained, he appeared to be in continuous pain.

On further examination on this day (May 22nd), there was marked tenderness over the region of the appendix vermiformis, especially at the base of the appendix (McBurney's spot). The constipation and pain continued, and although there was no fever it occurred to me that the case might be an appendicitis. I have known intussusception—presumably from irregular peristalsis in a section of paralysed gut—to occur in the insane, but as no definite swelling could be made out this was excluded from the diagnosis. Later in the day the patient brought up some foul dark "coffee grounds" matter which appeared to be faecal. Its reaction was not taken. When questioned he continued to complain vaguely of pain on the left side of the abdomen, afterwards on the right side, and later still in the pit of the stomach, which gave us no definite clue. There was rigidity present on both sides, and the abdomen did not move during respiration. The pulse was 132.

Suspicions of obstruction (and I think the symptoms, such as they are, point to this as the most likely conclusion) from internal strangulation were then aroused—I have seen local paralysis of parts of the intestine in the insane give rise to symptoms of obstruction—and the cause was sought in some possible adhesion from bands or possibly a malignant stricture about the pylorus, but no definite hardness could be felt, although the examination of a resistive patient unable to give information was necessarily unsatisfactory as to this. Both pain and tenderness seemed at times to be referred chiefly to the left side, and, as stated at first, the left rectus was felt to be the more rigid. A volvulus of the sigmoid flexure on its own mesenteric axis—or even of the caecum—was then suspected. I had previously had experience of three cases of volvulus of the sigmoid flexure in the insane—one was operated upon and recovered, the other two were not and died. In the present case the constipation continued, but a soap and water enema administered the second day, much against the patient's will, returned without effect almost as soon as given.

During the second night the patient was very restless, refusing all medicines—an opiate had been prescribed. He resented being touched, and threw his hot-water bottles out of bed and angrily cast off his fomentations. He drank a little milk and some tepid water.

The next day, the third and his last, the sickness ceased, but continuous hiccough came on; the pain was more marked and some tympanitis occurred, possibly due to decomposing faeces or to the extravasation of septic material into the peritoneum, and although the pleural cavity seemed to be unaffected, the lungs being clear and there being no empyema or pneumothorax and no abscess pointing, and although also there were no rigors and no elevation of temperature (it only reached 99° this last evening), a subphrenic abscess, either retroperitoneal or intraperitoneal crossed my mind, caused perhaps by the extension of some infectious material through a perforated chronic ulcer (on the anterior or posterior wall) of the stomach. Although Fenwick states that 80 per cent. of all subphrenic abscesses are due to perforated gastric or duodenal ulcer, my only previous experience was in the case of a young nurse who was operated upon for a perforated gastric ulcer and died. I consider that the age of my patient, as well as his sex, were against a subphrenic abscess connected with a perforated acute gastric ulcer, but Krause states that duodenal ulcers are seven times more common in males. Moreover, a subphrenic abscess due to a gastric ulcer is limited above—when on the anterior surface of the stomach—by the diaphragm and left lobe of the liver, and does not encroach, as did this case, on the right side beyond the falciform ligament, adhesions forming between the stomach (or omentum) and the anterior abdominal wall, but the seat of pain seemed to be against the view of a gastric ulcer. In ulceration of the duodenum or of the posterior wall of the stomach the lesser sac of the omentum may become filled with pus, which may work its way into the retroperitoneal tissue, tearing up the solar plexus, and so (as in this case) causing hiccough and vomiting. It was quite possible from the appendicular pain that a subphrenic abscess may even have been set up by the appendix trouble, but we found no special indication of this from the vague symptoms presented.

The patient gradually became weaker and sank into a condition of semi consciousness for several hours; the respirations, which were entirely thoracic, became shallower, the pulse more rapid—nearly 140—and feeble, hardly to be felt at the wrist, and the patient passed away on the third evening. I naturally viewed the prognosis as most grave—and in this my colleagues, the assistant medical officers, agreed—yet for several reasons beyond those already advanced, and which I need not here indicate, we deemed it inadvisable to operate. Had the diagnosis been more clearly made out, it is possible that an early abdominal operation might have saved his life.

Post-mortem Examination.

The only interest for present purposes was within the abdomen. When the abdomen was opened there was general peritonitis, and there were recent adhesions along coils of intestine, especially in the situation of the vermiform appendix, which was inflamed and swollen, although free. There were flakes of lymph in the pelvis, whilst in local cups or depressions there was dark yellowish fluid free. At the splenic flexure of the colon there was a constriction, but no obstruction, and the descending colon and sigmoid flexure were contracted and empty, but the ascending and transverse colon distended and tympanitic, showing that there had been irregular contraction and dilatation of this part of the intestinal wall, indicating local paralysis and "pseudo-obstruction."

On the under surface of the right lobe of the liver were adhesions—some old and firm, others recent—and within a cavity thus formed by adhesions was a collection of dark clotted blood, amounting to about 4 oz. Blood and fluid appeared to extend into the retroperitoneal structures, and the lesser sac of the omentum contained the same kind of fluid that was seen in the general peritoneal cavity. There was no pus. The posterior wall of the "blood-clot" cavity was formed of the duodenum with its perforated ulcer, the pyloric end of the stomach, and the head of the pancreas. On cutting into the duodenum two ulcers were seen about an inch from the pylorus on the anterior surface and in the first portion of the duodenum; one ulcer was about the size of a sixpence vertically above and close to another the size of a threepenny piece. The larger had perforated right through the three coats of the duodenum; the smaller one had not yet eroded into the peritoneal covering. Both had markedly thickened, but

abrupt and rather clean-cut edges, and were evidently of a chronic nature, although no stenosis of the duodenum was noted.

It is stated that one-fifth of all cases of duodenal ulcers are latent, and it is also stated that melaena in such cases appears before the haematemesis; but there was no melaena in this case; that in duodenal ulcers the localized pain is deeper and more towards the right side than is the case with gastric ulcers, and that in such cases pain is not infrequently associated with the right iliac fossa. Further, it is stated that the gastric juice is alkaline, that it digests fibrine and contains bile when there is sickness accompanying a duodenal ulcer, and, as occurred in this case, there is persistent emaciation; but loss of weight is a condition which is not infrequently associated with insanity apart from a duodenal ulcer. Some authorities have stated that when vomiting occurs after a perforated duodenal ulcer it is continuous, and not a single occurrence as it was to some extent in this case and as is usual after a gastric ulcer. There were no definite dyspeptic symptoms in this case apart from infrequent attacks of sickness, which were relieved from time to time by the ordinary treatment of constipation.

I have brought this case into prominence to show the difficulties there are in the treatment of the insane on lines adopted for the sane, owing to the extreme uncertainty there must be in arriving at a true diagnosis, from the absence of the usual subjective symptoms. Some have described the treatment of the insane to be as difficult a task in clinical medicine as can be set before any physician or surgeon. I venture to think the above case supports this view.

The above account has been submitted to Mr. W. McAdam Eccles, surgeon to St. Bartholomew's Hospital, who writes: "I am a little doubtful, even if the abdomen had been opened in the early stages of the disease, whether his life could have been saved, and I think the case shows very significantly the difficulty of diagnosis and treatment in insane patients."

THE TREATMENT OF CONGENITAL SYPHILIS BY SALVARSAN.

BY

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This paper is based on the results obtained in 40 children with congenital syphilis, varying in age from 1 month to 11 years. The cases were not specially selected in any way, but were taken as they appeared in the out-patient department of the Children's Hospital. When there was any doubt as to the true nature of the case the diagnosis was always established by obtaining a positive Wassermann reaction.

The treatment of congenital syphilis by mercury has in the past met with fairly good results, but, in out-patient practice especially, it has two rather serious drawbacks. These are (*a*) the great difficulty there is in keeping the child under its influence for a sufficiently long period, as the parents, on the slightest improvement taking place, often neglect to bring the child back for further treatment; and (*b*) the frequent recurrence of symptoms, even after prolonged mercurial treatment; also the possibility of the disease reasserting itself in later life, with the usual symptoms of late hereditary syphilis. Salvarsan has proved so successful in acquired syphilis that it is obviously desirable to give it a thorough trial in the congenital form of the disease. We hope to show in this paper that it can be given with reasonable safety and with great advantage in most cases.

Two methods of using salvarsan have been recommended:

1. *Indirect*, by injecting the mother before her confinement, or during lactation, so that the child may receive the preparation through the milk.

2. *Direct*, by injection of the child itself.

We have no personal experience of the first method. Fabre and Bourret, however, concluded that it is rarely advisable as a prophylactic means on behalf of the fetus, where the mother shows no actual symptoms of the disease, mercury here being quite efficacious. Should the mother, however, become primarily affected during pregnancy, or begin to exhibit secondary symptoms of the disease at this time, the use of salvarsan is urgently called for, as it is of vital importance to get the mother under the influence of an antisyphilitic remedy at once, before the fetus has had time to become seriously affected. In all such cases concurrent treatment with mercury is essential.

Jeanselme has noted sixteen cases where the mother's milk has been used as the medium; he concludes that, although this method occasionally causes a rapid disappearance of the superficial lesions, recrudescence of symptoms not unfrequently occurs. There is considerable doubt, indeed, as to whether this so-called "salvarsan milk" really contains any arsenic at all, Jesionek being apparently the only observer who has found it, and then only in minute traces. Ehrlich ascribes any benefit which may follow this method to the excretion of antibodies in the milk—these having been set free in the mother by destruction of the spirochaetes—and at best, as he says, the effect on the child is necessarily uncertain. Meirowsky and Hartmann tried the plan of injecting the child with the blood serum of patients treated with salvarsan, but the results were not satisfactory.

The *second* method, therefore—that of injection of the child—seems to be the only one of value, and gradually improving results from its use have been reported. These are largely due to two causes—namely (1) the administration of an approximately correct dose, usually 0.01 gram for every kilo (2¼ lb.) of the child's weight; and (2) improved method of injection. This consists in cutting down on the selected vein, laying it bare, opening it, and then inserting the cannula, just as in transfusing. In children under 1 year, and even up to the age of 3 or 4, the best vein to use is the external jugular. The dilated head veins, or the veins of the arm, will be found unsatisfactory for use, as they collapse when their sheath is opened and become very small. In some cases there is a difficulty in getting the cannula even into the relatively large external jugular. After the age of 4 or 5 years the arm veins may be used. In infants it is advisable not only to cut down on, but also to open the vein, as a hypodermic needle is apt to penetrate right through the vessel.

The subcutaneous and intramuscular methods formerly employed often led to an area of necrosis or to an abscess. This caused doubt as to the quantity of the dose actually absorbed, and also severe pain usually followed. It is now generally held that the direct method of injection by salvarsan is the most efficacious, and that it is free from serious danger.

Before detailing cases, personally treated, which have led us to concur in this belief, a word may be said as to the value of the Wassermann reaction in the congenital form of syphilis. The reaction is stated to be almost invariably positive, and although not necessarily so at birth, it is always found so on the first onset of symptoms; the reaction in the later manifestations is also constantly positive. This is confirmed by our experience.

As an index of the efficacy of the treatment, however, the reaction is much less useful, as it has been found to vary from time to time without any indication being given by the patient's "going back" in any way. We have not, therefore, considered it necessary or expedient to have this reaction systematically tested, because that would entail considerable loss of blood to children often wasted and anaemic. The results in the cases of mothers of syphilitic babies are also very instructive. The reaction is always positive within about a year of the child's birth, which proves that the mother of a syphilitic child is herself necessarily syphilitic. In any doubtful cases of congenital syphilis, therefore, we should examine the Wassermann reaction of the mother, instead of that of the child, and if it is negative, we may conclude that the child is free from infection.

Cases Treated by Salvarsan.

During the past twelve months we have treated 40 children suffering from congenital syphilis with salvarsan.

Up to the present 7 deaths have occurred, while the other 33 cases are alive and doing well.

Deaths.

Six of the 7 deaths were in children under 6 months. One of these, who had an extensive pemphygoid eruption, had a fit and died suddenly forty-four hours after the injection. At the *post-mortem* examination the spleen and liver were found to be studded with numerous minute gummata. Another child died three days after injection. In this case it was afterwards found that the water had not been freshly distilled, and this may have been a contributory cause of death. A third, with a severe skin eruption covering most of the body, including the palms of the hands and the soles of the feet, died of broncho-pneumonia five days after the injection. Of the other 4 cases, 1 was a very wasted child. She steadily lost weight and died in three weeks. The other 3 did well for some time. One had a convulsion two and a half months afterwards and died suddenly. The other 2 died six months later of broncho-pneumonia.

Age: Physical Signs.

The ages of the children at the time of injection varied from 1 month to 11 years, as shown in the following table:

3 months and under	... 15 cases
Between 3 and 6 months ...	... 7 ,,
Between 6 and 12 months ...	... 5 ,,
Between 1 and 5 years ...	... 7 ,,
Between 5 and 11 years ...	... 6 ,,

The 22 cases under six months showed practically all the symptoms usually associated with the disease at this age. The most frequent of these were rashes, usually with coryza and fissuring about the mouth and anus. There were also several instances of epiphysitis, onychia, etc.; and hoarseness, epistaxis, bossing of the skull with cranio-tabes, and large dilated veins over the scalp, were also met with.

Condylomata were principally seen in the cases between 1 and 5 years of age. Three of the cases between 5 and 11 years showed syphilitic synovitis of both knees—one of these cases having also interstitial keratitis. Another (with interstitial keratitis) was mentally deficient. The fifth case had multiple gummata, while the sixth showed general enlargement of the superficial lymphatic glands.

Effect of the Injections.

Rashes.—These included all varieties—macular, maculo-papular, pustular, etc., and one case with a pemphygoid eruption where spirochaetes were obtained from the serum. The effect of salvarsan on all such conditions was that in three to four days there was a well-marked improvement. In cases in which the rash was slight complete disappearance took place in seven days, while in more aggravated cases the rash had gone entirely in sixteen days. Fissuring and ulceration around mouth and anus reacted in much the same way. In one week the fissuring (if not very deep) was replaced by a scar, whilst in those with deeper fissuring three weeks were necessary to effect this. Condylomata gave also much the same results—namely, marked improvement in one week and complete disappearance in fourteen to sixteen days. In from seven to ten days there was usually only a reddened shining area of skin left.

Coryza.—Even in very young children marked falling in of the bridge of the nose was noticed, showing the early destructive nature of the lesion. The coryza, if at all severe, was most intractable, no doubt owing to a mixed infection having taken place. After the injection in mild cases the snuffling improved fairly quickly, and usually disappeared in from six weeks to three months. In more severe cases, while treatment always caused some immediate improvement, the troublesome condition did not disappear in much less than six months. In one specially severe case a second injection of salvarsan was given three months after the first, and this seemed markedly to modify the unfavourable symptoms. In addition, all severe coryza cases were treated by antiseptic nasal douches.

Epistaxis.—Two of our cases before injection suffered from slight but repeated attacks of epistaxis. After injection one of these cases had no further haemorrhage, while the other after one severe attack has had no further relapse.

Hoarseness.—This condition always improved rapidly and disappeared entirely in from two to three weeks.

Syphilitic Nails.—Two cases showed onychia, but after injection all the nails came off and were replaced by good, well-formed nails in about two months.

Epiphysitis.—These cases all showed great improvement in from five to twelve days. The pain disappeared quickly and the child was well and able to use arms and legs in fourteen to twenty days.

Enlargement of Spleen and Liver.—This was seen in one most interesting case. The child after birth did not thrive satisfactorily, and at 4 months old the mother noticed a lump on the "left side of the stomach." This gradually became larger but nothing was done, and the child was first seen in hospital at 9 months old. He was very anaemic and wasted, with a distinct specific rash and one large fissure on the upper lip. The head veins were greatly distended, there were condylomata at the anus, the spleen reached to the umbilicus, and the liver was three fingerbreadths below the costal margin; after injection the rash and condylomata disappeared rapidly and the spleen gradually diminished in size, until now (eight months later) it is only just palpable. Its consistence also changed, being at first very hard, but gradually becoming softer. The liver, too, is now normal in size. The dilated veins have disappeared and the child has put on 10 lb. in weight.

In congenital syphilitic infants the superficial lymphatic glands are not appreciably enlarged, but in late hereditary cases these glands are frequently found greatly increased in size. For example, a syphilitic boy, aged 9 years, was seen in the out-patient department. He was found to have two enlarged glands in the neck about the size of a Tangerine orange. Smaller enlarged glands were also found in the axillae and groins. Salvarsan was given, and in one month a marked improvement was noted. A second injection was given four months afterwards, with the satisfactory result that the swelling in the neck has disappeared, although the axillary swellings do not yet show much improvement.

Syphilitic Synovitis.—Three of our cases, all over 6 years of age, had swelling of both knees as one of their symptoms. The diagnosis of syphilis was confirmed by getting a positive Wassermann reaction. The first case was treated, to begin with, by potassium iodide and mercury for four weeks with very slight improvement. Salvarsan was then given. The knees improved rapidly, and were quite cured in two months. The second case also did well. The third has not improved so quickly. The improvement was certainly greater after potassium iodide and mercury were given in addition to salvarsan.

Eyes.—One of our cases with arthritis had also well-marked keratitis and irido-cyclitis, with a good deal of conjunctival discharge and great photophobia. The eyelids were red and swollen, and the child was unable to open them. At first he was put on potassium iodide and mercury, and the eyes were treated by atropin, etc., without any apparent improvement taking place. Salvarsan was then given, and the results were at once encouraging. In six days the child was able to open its eyes slightly, and in one month completely, while the corneal condition also improved. In two months he could distinguish accurately objects and colours 12 ft. away. A later injection of salvarsan was given, and at the present time (six months after being first seen) he is in robust health, all unfavourable symptoms, with the exception of slight keratitis, having disappeared. The other child with keratitis was mentally deficient. The eye condition is improving, but the mental state remains unchanged.

Gummata.—We had one case which showed two large breaking-down superficial gummata. In two to three weeks after salvarsan was given a large slough had separated, and in two months the wound had healed completely.

Reaction to Salvarsan.—Several observers have noticed various reactions after injections—for example, marked exhaustion and sleeplessness, great nervousness, with photophobia, and undue sensitiveness to noises, with sometimes fever and bronchitis. In our cases we twice met with slight bronchitis, but beyond this the only reaction noted was an increase of temperature in about half the cases. It rarely

rose above 100°, however, and in twelve to twenty-four hours it fell to normal. Two cases were exceptional. In one, thirty hours after injection, the child had epistaxis, with increased nasal discharge, and the temperature ran up to 104°. It continued above 103° for three days, and then, within twelve hours, fell to normal, and continued so. The other case (synovitis of knees) was brought in with a swinging temperature, which ran up at night to 101.5°. After salvarsan was given this swinging temperature became normal in seven days.

Recurrence of Symptoms.—In only one of our cases, a child of 3 months, with epiphysitis, have we seen any recurrence of symptoms of syphilis after treatment with salvarsan. All the symptoms disappeared quickly after the injection, and the child afterwards had mercurial treatment (hyd. c. cret.) for five months. The mother then ceased coming to the hospital, but two months later she reappeared with the child, who was in good health but had developed a condyloma at the anus. This soon disappeared under further treatment with mercury.

CONCLUSIONS.

Salvarsan is a potent remedy, and with proper dosage and technique can be used with safety in the case of the youngest child. In very severe cases, however, such as those with pemphigus, extreme wasting, etc., the dose should be reduced from 0.01 gram to perhaps half that amount. In three of our most severe cases death ensued within sixty hours, and we think that a smaller dose, repeated afterwards if necessary, would have been safer. In comparison with mercury, salvarsan gives much better results, especially in the severer cases. After giving an injection it is wise to continue the mercurial treatment, as a combination of the two seems to be more efficacious. Some of our cases, however, which did not attend again for three or four months, had done well with salvarsan alone. In all the older children mercury and iodide had been previously given, with very slow improvement (especially in eye cases). After salvarsan was given improvement was much more rapid, but it is always advisable to carry on the mercury and iodide treatment also after the injection.

As already mentioned, in doubtful cases of congenital syphilis it is better to take the blood from the mother for a Wassermann reaction than to submit a weakly infant to such a procedure.

We express our sincere thanks to Mr. John Fraser, Assistant Surgeon to the hospital, for his kindness in performing all the injections; also to Dr. Melville Dunlop, Senior Physician to the hospital, for his help and his kindness in allowing us to keep the first dozen cases under observation in his ward until we were satisfied as to the effect of the drug; after this experience we felt justified in treating the later cases as out-patients.

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THE first International Exposition of Safety and Sanitation ever held in America will take place in New York in December of this year, under the auspices of the American Museum of Safety, of which Dr. William H. Tolman is director. The exposition will include exhibits devoted to safety, health, sanitation, accident prevention, welfare of the public and the individual, and the advancement of the science of industry. By a special Act of Congress, exhibits from foreign countries will be admitted free of duty. According to the *New York Medical Journal*, from which we take these particulars, every year 40,000 workers are killed in the United States; two million are injured, and three million become ill from preventable causes. The main object of the exposition is to point the way to the conservation of human resources.

THE PHYSIOLOGICAL TREATMENT OF PATHOLOGICAL SCOLIOSIS BY ROTATION.

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AT the last meeting of the American Orthopaedic Association, which was held at Washington in May, 1913, a committee was appointed which is to be known as the Scoliosis Committee. It is their duty to undertake an investigation and comparison of the results of the treatment of structural scoliosis by the methods under discussion at the present time. The report made by this Committee will be looked for with some eagerness by those interested in the surgery of the bones and joints on both sides of the Atlantic.

As the rotation method of treatment, which was first brought before the Canadian Medical Association over two years ago, will be subjected to rigid investigation and inquiry by this committee, it may be of interest to consider briefly the claims which are made for this form of treatment, which is founded on theories differing essentially from most, if not all, other theories of the mechanics of scoliosis.

To have a clear knowledge of the mechanics and theories of treatment by rotation it is necessary to have a definite idea of the movements possible in the normal, and especially of the inter-relation between the movements of the vertebrae and the movements of the rib walls of the thorax. This, a knowledge of the physiological, with a clear conception of the pathological, is the foundation on which our ideas of the rational treatment are constructed.

If we examine the cadaver of one who has presented the signs of organic scoliosis during life we notice that scoliosis is more than a deformity of the spinal column; it is a deformity of the trunk and especially of the thorax. If we examine the thorax more particularly we will observe that there is a prominence of the ribs on one side posteriorly and at the same time there is a bulging of the ribs on the other side anteriorly. These are signs of pathological scoliosis and signs of equally great importance as those seen in the spinal column.

The movements possible in the thorax are neither many nor great, according to authorities; in fact, Feiss takes great care to impress that the thorax moves as a whole and that movements of it are conducted in the dorso-lumbar region, but the theory that there is little movement between individual dorsal veretebrae is disproven by the great change of position assumed in pathological scoliosis. In fact, one is impressed with the amount of movement, both rotation and lateralization, that has taken place between individual vertebrae when one takes the trouble to examine such a cadaver. It seems well, then, since scoliosis has proved the extent of movement possible, to accept the statement that a wide range of movement is possible, but not usual. (The decided difference between the range of physiological movement possible and the result of pathological movement may probably be explained by the slow yet sure action of gravity, which eventually produces the extreme changes found in organic scoliosis. Temporarily applied force can only produce the more limited movements of physiological scoliosis.) A point of the greatest importance in the consideration undertaken by us is that of all movements possible rotation is the freest in the dorsal region. A second important point was demonstrated by Bradford twenty years ago, and later Lovett also drew attention to the fact that movements of the trunk are most possible in an attitude of flexion. The truth of this statement becomes evident on examining one in whom the pelvis has been fixed. It will be found in that case that all attempts to either rotate the body or bend it sideways will, in order that these movements may be carried out to the fullest extent, be accompanied by an involuntary flexion of the body forwards. This is probably due to the direction of the articular processes of the vertebrae. The truth of the statement that movements are most possible in flexion is borne out by the examination of a model whose pelvis has been fixed. If she attempt either side-bending or rotation to an extreme degree it is noticed that an involuntary

position of forward bending or flexion is assumed by her at once.

One of the most interesting points to notice in studying the effect of movement on the thoracic parietes is the correlation of movements in the rib wall and the spinal column. Movement of a rib means movement in vertebrae, and movement in the latter means movement in the former. This statement is important. The thorax is said to move as a "whole." Now it may move more or less as a separate entity, but, whilst the thorax is moving as such, each integral part of the thoracic parietes moves also, independently of the "whole," and, too, there is probably a constant relationship between these movements. (This is important, as this may give a means of measuring degrees of scoliosis if there is a constant relationship between the position of the ribs and the position of the vertebrae.) We see, then, that the assumption of an attitude must cause or be accompanied by extensive changes in the thoracic parietes, because of this correlation of movements seen in the walls of the thorax. Further, any attitude is either one of strain or non-strain. If one bends to the left side, the ribs on the right side become more prominent posteriorly and flattened laterally. If the reverse attitude is assumed, the similar changes take place on the reverse side. We have, then, in the assumption of such attitudes the assumption of positions similar in most respects to pathological scoliosis. The differences between the two conditions are, first, that the position in physiological scoliosis is not a permanent one, as is seen in organic scoliosis; secondly, we do not see in physiological scoliosis compensatory or secondary curves.

In the study of organic scoliosis one is impressed with the fact that in all cases of this condition there are two features to be considered: first, the primary cause, such as anterior poliomyelitis, for instance; and, secondly, the gradual changes induced by the primary cause. These latter illustrate the mechanics of scoliosis. Now the mechanics of pathological scoliosis can hardly be said to differ from those of physiological scoliosis, except that in the former conditions go further. Here, as we have said, we have organic change and compensatory curves, but both of these must be preceded by the earlier conditions such as are seen in physiological scoliosis. If this be so, the cause of pathological scoliosis may be said to be physiological scoliosis.

There is a limit to the elasticity of all bodies. This limit can be reached in the physiological scoliotic, just as it can be reached in a green stick. Bend far enough or often enough, and there will be no return to the normal, and thus the physiological may become the pathological.

Treatment.

The rotation treatment of scoliosis is based on our ability to secure physiological scoliosis by posture. In studying a transverse section through the trunk of a scoliotic we are impressed with the fact that the two hemispheres are opposed in form. If we could reverse these opposing hemispheres, we would have scoliosis of an opposite character. Let us, then, attempt this by inducing physiological scoliosis the counterpart of the pathological scoliosis. This may be done by bending towards the side of the convexity or by rotating towards the side of the convexity of the spinal curve.

If we choose side-bending as our means of obtaining physiological scoliosis, we must necessarily bend the patient's trunk towards the side of the convexity of the organic curve—that is, in the direction of the concavity of the compensatory curves; then these latter will be increased and important organs will be pressed upon.

If, on the other hand, we choose rotation as a means of obtaining physiological scoliosis, we choose the movement which is freest in the dorsal region, and we must realize that our organic change is most frequent in this region; further, we are not liable to cause distressing compression. Rotation, it may be added, acts on the dorsal vertebrae in one way and on the lumbar and cervical vertebrae in another way. In the rotation method used by us the ribs are first acted upon. These, in their turn, act as levers on the vertebrae; we force, by this method of leverage, the posterior part of the vertebrae away from the rib wall and the bodies naturally rotate towards the rib wall; thus, if we rotate the dorsal vertebrae towards the rib wall on which we act, we must also rotate the lumbar vertebrae in the same direction because of their attachments to the dorsal vertebrae. The rotation treatment acts primarily on the rib wall and secondarily on the dorsal vertebrae, and lastly on the lumbar vertebrae. With this rotation we get straightening of the spinal column. It cannot be otherwise. Mechanical principles support this contention. Skiagrams demonstrate it.

Practical Application.

The rotation treatment of scoliosis aims at causing the correction of the deformity by the production of its counterpart. The production of physiological scoliosis of an opposite character to the pathological scoliosis which already exists is undertaken by rotating the patient's thorax on a fixed pelvis, in a direction towards the side of the convexity of the curve. In thus producing physiological scoliosis of an opposite character to the pathological scoliosis from which the patient suffers we not only change the curve of the spinal column, but we change the deformity of the thoracic walls; that side which bulges unduly is flattened, and the flattened side is filled out.

We have already shown in this study that the chief deformities of scoliosis are in the thorax; that rotation is the chief movement of the dorsal spine; and that the greatest rotation possible is to be had when the dorsal spine is flexed, because here, probably, the articular processes of these vertebrae are in a position furthest removed from impinging on one another.

We have drawn attention to the difference in the behaviour of the spinal column when submitted to twist—say, by a wrench—and when submitted to the same by means of the attached ribs.

In other words, we have drawn attention to the fact that vertebrae may be rotated around their own centre of rotation, which may be a varying one. We will, then, endeavour to obtain the greatest possible rotation of the thorax, and, through its rib wall, of the vertebrae. As we can best obtain this when the thorax is in the flexed position, we will rotate the patient by means of the arms after having flexed the thoracic spine.

In doing this we must always remember that the paradox already mentioned must be kept in mind—the vertebrae rotate in a direction opposite to that of the thorax.

Those who employ this physiological form of treatment by rotation believe that the aim and object of treatment in scoliosis should be to place the thoracic parietes (including the vertebrae) in a position removed as far as possible from their present position of deformity. There they must be held in any possible way until by Wolff's law they have been so changed that it has become possible for their new and more normal position to be maintained. In scoliosis of a non-paralytic type this may be done by the application of plaster-of-Paris. (In scoliosis of a paralytic type neither plaster nor dependence on the law of Wolff will suffice. It is to be feared that the best treatment for these may prove to be the use of buried splints of either bone or steel.)

The primary deformity being found, its counterpart is produced by the induction of physiological scoliosis by rotation. The charms of this form of treatment lie in the fact that each step undertaken can be thought out and a reason suggested for every move, and that any one can produce correction without apparatus and simply maintain the same by the use of plaster-of-Paris. The writer employs a more or less complicated and continually evolving apparatus in order to secure the greatest possible rotation. Dr. Adams of Boston uses no very special apparatus, and yet can show most gratifying results. All one has to do is to rotate by means of the arms and fix. We rotate in flexion because we get greatest rotation in this position. We most carefully cut out windows over contracted thoracic walls and provide pressure over bulging walls. We recommend a course of breathing exercises, calculated by my colleague Dr. F. W. Harvey of Montreal, to expand contracted parts; but the principle, however, remains the same. These are simply adjuncts to the real form of treatment, which is the induction of physiological scoliosis by rotation.

ACUTE PANCREATITIS: ITS CAUSES, SYMPTOMS, AND TREATMENT.

*WITH A DESCRIPTION OF THREE CASES.**

By ARTHUR J. EVANS, F.R.C.S.Edin.,

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THE rapid development of abdominal surgery in recent years, especially as regards the treatment of diseased organs lying in the upper abdomen, has in a large measure been due to the pioneer work of Mayo Robson and Moynihan, and to this must be added the no less important pathological, chemical, and experimental work of Cammidge, Opie, Flexner, and others.

We have now, therefore, a very precise knowledge of the intimate inter-relationship between the biliary passages, the duodenum and the pancreas, and how disease of one of these structures may affect the other, more especially so if it be of a catarrhal or microbic nature.

It has been my lot within the past eighteen months to operate on three cases of acute pancreatitis, a condition which, not many years ago, often passed unrecognized, even on the operating table and sometimes in the *post-mortem* room.

The recognition of acute pancreatitis from a clinical standpoint during life is still an exceedingly difficult matter, and in only one of my cases was the diagnosis suspected before the abdomen was opened.

CASE I.

E. J., male, aged 35, a dock labourer, was brought into hospital in a state of collapse. He had been drinking heavily during the previous ten days, and had hardly been sober during that period.

He had been vomiting frequently for some sixteen hours, and complained of intense paroxysmal pain in the epigastric region. The conjunctivae were slightly tinged yellow; there was no jaundice of the skin; the symptoms were typical of an "acute abdomen."

He vomited some black altered blood during my examination.

The abdomen was retracted, and the recti firmly contracted in their upper half. The patient, at intervals, lapsed into delirium; the pulse was exceedingly rapid and thready, the temperature subnormal.

There was no loss of liver dullness. A perforation of the stomach or duodenum was suspected, and an immediate laparotomy was performed under open ether, the region of the stomach being explored by the usual median incision. The peritoneum and omentum was found to be oedematous and swollen and of a deep red colour.

Recent adhesions were evident in the anterior abdominal wall.

The stomach and duodenum were carefully examined, and there was found no evidence of perforation.

The omentum was separated from the anterior abdominal wall, to which it was adherent, and on its under-surface were several well-marked white areas, varying in size from that of a millet seed to a shilling. It was then at once recognized that the pancreas must be the seat of the disease.

On exploring the small peritoneal sac with the finger, a large mass of black necrotic tissue, together with blood clot, was dislodged. A large drainage tube was passed down to the pancreas and the wound closed hurriedly, owing to the collapsed condition of the patient.

He died six hours after the operation.

The autopsy disclosed extensive inflammation of the common bile duct and upper part of the duodenum. There were no calculi in the biliary passages; the pancreas was to all intents and purposes unrecognizable as a definite organ. The head consisted of a large necrotic cavity, filled with blood clot and débris; the body and tail were swollen, red, and oedematous, and exceedingly friable, so much so that they could not be removed except in small portions.

CASE II.

A. F., aged 51, female, was brought into hospital in March, 1912. She had been vomiting for some days previously, and had suffered severe pain in the upper abdomen, which came on in paroxysms, for the past four months.

This culminated in a very severe attack previous to admission. She had had several "bilious attacks" during the past seven years, but had never had jaundice to her knowledge. She had been in the habit of drinking alcohol, but not heavily. The patient was of the fat, plethoric type, and was exceedingly collapsed on admission. There was no jaundice. On examination of the abdomen there was no undue distension, the recti, especially in their upper half, were firmly contracted, and she complained of excruciating pain on palpation over the region of the stomach and transverse colon. The liver was not enlarged, but there was tenderness over the region of the gall bladder. No other abnormality could be distinguished, but she was a difficult case to examine owing to her obesity.

The pulse was 130, and the temperature subnormal. Laparotomy was immediately performed, a vertical incision being made in the upper part of the right rectus, which would command the exploration of the bile passages, and the pyloric region of the stomach. On opening the parietal peritoneum the gastro-colic omentum was exposed. This was seen to be somewhat matted together and covered with white, glistening plaques of various sizes and irregular shapes, standing out in marked contrast to the yellow, fatty membrane in which they were embedded. "Fat necrosis" was at once recognized,

The whole omentum was then drawn through the wound and its under surface examined; this was studded over with shining clusters of "fat necrosis," and presented a picture never to be forgotten. Exploration of the small peritoneal sac with the finger released some blood-stained fluid, and beneath the finger the pancreas was felt to be swollen and oedematous. The peritoneum in front of it was gently torn through and a quantity of dark-brown-stained fluid was evacuated; a large drainage tube was inserted down to the pancreas through the gastro-colic omentum. The gall bladder, which was distended, was then opened through the upper part of the incision. It was found to contain a large quantity of thick, viscid bile and several small calculi. A drainage tube was sutured in and the wound closed.

The patient made a steady and uneventful recovery and is alive and well to-day.

CASE III.

D. C., male, aged 52. I am indebted to Dr. Touch, of St. Helens, for the notes on this case. The patient had been a very healthy man up to the illness. He had had pneumonia fourteen years previously and had entirely recovered from it. He was extremely temperate as regards alcohol but was a heavy smoker; he was very regular in all his habits and lived a generally healthy life. There was no history of any biliary trouble; he had put on flesh very rapidly during the past six months.

On November 6th, 1912, he became suddenly ill, with severe agonizing epigastric pain, the pain being entirely localized to the epigastric region. This pain lasted some twenty-four hours and was accompanied by frequent vomiting of some brownish material. The abdominal muscles were not rigid, but the tenderness made palpation difficult. Pulse-rate 120, small and regular. After the pain disappeared, deep palpation gave the impression of a fairly large tumour behind the stomach, but, as the acute symptoms passed off, it was decided to watch the case further.

There was obstinate constipation for the first few days; this was followed by diarrhoea, six to eight stools a day being passed up to the date of operation. They were greenish in colour and extremely offensive. The urine was found to contain sugar, and was of a high specific gravity, 1025. The patient remained in a more or less quiescent state for nearly a month, but on December 2nd he was again seized with an attack, the feature of which was precisely the same as in the first instance. Some abnormal condition of the pancreas was then suspected.

I saw him in consultation on December 4th, and an operation was decided upon. This was performed at St. Helens Hospital the next day.

On opening the abdomen extensive adhesions were found between the omentum and the anterior abdominal wall; the peritoneum and omental fat were stained a dirty red colour. No fat necrosis could be seen owing to the general discoloration of the tissues. An irregular mass could be felt behind the stomach, lying in relation to the small peritoneal sac. The foramen of Winslow was occluded by adhesions. The finger was introduced into the small sac above the stomach, via the gastro-hepatic omentum; and a large quantity of brown "muddy" fluid was evacuated through the opening, followed by brown-coloured débris and blood clot. The whole of the posterior portion of the upper abdominal cavity appeared to be filled with the same material. As much as was possible was removed by gauze swabbing, but, owing to the extremely collapsed condition of the patient, a large quantity had to be left behind. A large drainage tube was passed down to the pancreas, and the wound sutured.

The condition of the gall bladder and common bile duct could not be ascertained owing to the extensive adhesions around and the critical condition of the patient.

The patient showed marked improvement immediately after the operation. The sugar, which previously had been found regularly in the urine, entirely disappeared. On the seventh day, however, he showed signs of delirium, which came on at intervals. This gradually increased, with other signs of internal toxaemia. He died ten days after the operation. An autopsy could not be obtained. Two interesting features marked this case: First, the occurrence of two separate acute attacks, with an interval of twenty-six days between. Secondly, the appearance of glycosuria after the first attack, and its immediate disappearance after the operation.

Acute pancreatitis is a disease of adult life, and is more frequently found in males than in females. It occurs very rarely in children, as a metastatic manifestation following mumps.

*Read before the North Wales Branch of the British Medical Association.

Cases have also been reported as being due to traumatism. It has been produced experimentally by injecting bile and bile salts into the pancreas of dogs; and it has been found to have occurred in the human subject by the impaction of a gall stone in the ampulla of Vater, thus deviating the bile, which has been previously infected by cholangitis, into the duct of Wirsung, and thence into the head and body of the pancreas.

It has again been shown that the injection of the secretions of the duodenum alone into the pancreas has been followed by acute necrosis; this coincides with the *post-mortem* conditions sometimes found after death from this disease, where the duodenum is inflamed, and in some cases the seat of ulcer. It has, however, been clearly shown from the existing literature that at least 50 per cent. of all cases of pancreatitis are complicated by gall stones or cholangitis.

The histological structure of the gland, as Mayo Robson and Cammidge have pointed out, are of importance in view of the acute changes which may take place as the result of microbic or inflammatory invasion. The gland itself has no true capsule; its lobes and lobules are but loosely held together by delicate connective tissue, while the blood vessels and ducts are much thinner and finer than those found in the salivary glands. The digestive ferments also which it secretes are the most powerful in the body, thus rapidly producing, when set free, auto-digestion in the gland itself.

It follows, therefore, that when the organ becomes invaded—via its ducts—by any irritant, and more especially so by infective material, a rapid and extensive inflammatory reaction results.

Acute haemorrhagic pancreatitis, gangrenous pancreatitis, and purulent pancreatitis are simply phases of the same disease. Haemorrhage probably follows the initial inflammation, the haemorrhage causes a rapid disintegration of the friable organ, and rapid destruction of its structure takes place. Added to this, its powerful digestive ferments are let loose in the abdominal cavity, and one striking evidence of their potency is found in the presence of so-called "fat necrosis." This latter condition is due to the "steapsin," or fat ferment, splitting the fat of the gland itself into fatty acid and glycerine, together with any other fatty structure it may meet. The soluble glycerine is absorbed, while the fatty acids are deposited in needle-like crystals in the fat cells. These altered fat cells are arranged in clusters or patches, and are of a striking dull-white colour, and stand out in unmistakable contrast to the surrounding yellow fatty tissue.

Symptoms.

These are at first vague in the early stages. There is often gastric uneasiness, flatulence, obstinate constipation, and persistent vomiting.

After some hours—sometimes several days—the patient is struck down by agonizing unbearable pain in the epigastric region, often shooting towards the back. This is followed by vomiting and collapse.

The pain is continuous, with periods of paroxysmal increase, and it may be so intense as to cause the patient to faint.

There is also acute tenderness of the upper abdomen, especially so in the middle line.

The pulse becomes rapid and thready, and assumes the abdominal type. The temperature is usually normal or subnormal, but as inflammation increases it may become irregular. In two of my cases there was marked cyanosis, in striking contrast to the pale, pinched aspect of ordinary peritonitis.

Constipation is a marked feature, so much so that this condition has been mistaken for intestinal obstruction.

Delirium is very constant, and was particularly marked in my third case, alternating with perfect mental clearness.

Jaundice may be present. It was noticed in Case I. Its presence and its intensity are entirely dependent upon whether there is obstruction in the bile passages or not.

Sugar is rarely found in the urine, although it was present in my third case.

If the disease has progressed for some days a definite mass can be felt in the epigastric region; it is well defined, circumscribed, and limited to the upper abdomen. In front of it the stomach and colon can be percussed. The mass is due to localized peritonitis, and the accumulation of blood and inflammatory exudate in the small peritoneal sac in front of the pancreas.

Diagnosis.

This is exceedingly difficult, and in most cases impossible. Given, however, a patient who has been previously healthy and who begins to complain of flatulence and dyspepsia, this being followed rapidly by the acute symptoms already referred to, with the formation of a definite circumscribed mass in the upper abdomen, the presence of pancreatitis is probable. The differential diagnosis must be made from a perforating gastric or duodenal ulcer, intestinal obstruction, acute inflammatory affections of the bile passages, and acute appendicitis.

The very nature of such symptoms warrant, however, an immediate exploratory laparotomy, and in most cases it is only by these means that the diagnosis can be made with certainty.

Cammidge's test, which depends upon the demonstration of pentose and other substances in the urine, has proved highly successful in his own hands, but its complexity, together with the length of time involved in performing it, do not warrant its use in so rapid and lethal a disease as pancreatitis in its acute form.

Treatment.

The treatment is wholly surgical—immediate laparotomy, with exposure of the pancreas, and its free drainage. If the patient's condition will allow it, drainage of the gall bladder also should be established. If this is not possible at the time, the gall bladder should be drained as soon as the patient's condition improves sufficiently. The mortality is exceedingly high. Fully 60 per cent. of the recognized cases succumb after operation; without operation it is almost certain death.

The intensity of the disease depends in a large measure on the amount of gland destroyed, the actual cause of death being trypsin poisoning.

This protein-splitting enzyme has only a feeble digestive action of itself, but when brought into contact—as shown by Pawlow—with the ferment "enterokinase" found in the succus entericus, its digestive action is rapidly brought into play. When, therefore, following the rapid disruption of the gland, it is thrown into the free abdominal cavity, its action on the tissues is not of a digestive nature, but it is absorbed, and produces that intense "lethal" condition, which is so characteristic of this interesting but deadly disease.

IT is stated that there are now some 250 legally qualified women practising medicine in Japan, and that there is an almost equal number of women studying medicine in the University of Tokyo. One of the chief private hospitals in the Japanese capital is that carried on under the direction of Dr. Yoskoka Yacoi, one of the leading medical women of Japan; it has an out-patient department where the average attendance of patients is about eighty a day. The movement for the repeal of the law forbidding women to practise medicine was started by a lady named Hagino Yosci-Ko in 1884.

HEISER, in the *Philippine Journal of Science*, vol. viii, Section B, No. 2, April, 1913, describes the recent outbreak of plague in Manila. He states that after an absence of six years in human beings, and five years among rats, plague was again found in the Philippine Islands on June 9th, 1913. Manila is in almost daily communication with badly plague-infected foreign ports, which are within a few days' steaming distance for the average vessel, and therefore passengers, crew, rodents, and vermin may arrive well within the incubation period of the disease. This being the case, it seems remarkable that the Philippines should have remained free from plague for so many years. During the period of its absence, however, cases of the disease have been detected from time to time amongst human beings upon incoming vessels, but such infections have always been intercepted at quarantine stations. As the outbreak was still going on when Heiser's paper was written, he has confined himself strictly to a statement of facts, and for the present has not attempted to draw any conclusions as to the source of origin of the outbreak.

EIGHTY-FIRST ANNUAL MEETING
OF THE
British Medical Association.

Held in Brighton on July 23rd, 24th, and 25th.

PROCEEDINGS OF SECTIONS.

SECTION OF CLIMATOLOGY AND BALNEOLOGY.

F. J. PALEY, M.D., President.

PRESIDENT'S INTRODUCTORY REMARKS.

AFTER a few initial observations, Dr. Paley said: As you are doubtless aware, there has not, I believe, ever been a Section devoted to balneology and climatology at the annual meeting of the British Medical Association. But, as Brighton occupies a proud position as a seaside health resort and has done so for more than 100 years, it was felt that it was peculiarly appropriate that such a Section should be instituted here. The credit of this idea is due to our hard-working local secretary, Dr. Copeman, who suggested it at a meeting of the local executive. Though Brighton cannot, perhaps, be considered a balneological station in the sense that Bath or Harrogate or Buxton and many others are—that is to say, that, though there is no natural spring or spa of mineral water here, yet we have that largest of all baths, the sea.

DISCUSSION ON SEA BATHING.

OPENING PAPER.

By W. J. TYSON, M.D., F.R.C.P.,
Physician, Royal Victoria Hospital, Folkestone.

IN considering the subject of *sea bathing*, we must take into account, not only the sea water, but also the *sea air* and the character and situation of the town itself.

1. *Sea Water.*—The name "salt water" is appropriate, for its principal ingredient is common salt, 3 per cent., but no doubt other constituents, such as the sulphates of magnesia and soda, muriate of magnesia and lime, with salts of iodine and bromine, add to its value—the total solids amounting to 4 per cent.

Sea water does not evaporate so readily as fresh water, and doubtless after bathing the salt particles, remaining in the skin, even when it has been dried with a towel, keep up a certain amount of irritation and warm glow. For this reason people do not as easily take cold after a sea wetting as after a wetting with fresh water.

The temperature of the sea is affected by its saline constituents. Maury writes: "It is the salts of the sea that assist the rays of heat to penetrate its bosom; but for these the solar ray, instead of heating large masses of water like the Gulf Stream, would play only at or near the surface, raising the temperature of the waters there, like the sand in desert places, to an inordinate degree."

The temperature of the sea is more equable than that of river water, so that bathing in sea water can be continued for a longer period of the year.

There is another physical characteristic of the sea, namely, its constant motion. The friction so induced produces a continuous and exhilarating tonic action, but of course, if the immersion is carried on for too long a time, or in too rough water, exhaustion of the nervous system may occur.

The immediate action on the skin does not sensibly differ whether the water is salt or fresh, but the remote effects are not the same, for the density and composition of the former are different, and the environment of sea bathing is unlike that of fresh water bathing. The first shock of the water contracts the surface blood vessels, with abstraction of heat and a determination of blood to the interior, succeeded by a reaction—a sense of warmth and glow; this cycle may be repeated during the bath, but of course in a lessened degree, but if the bath is continued too long, a depressing effect appears.

It is the above action that produces the tonic effect of sea bathing when wisely and judiciously carried out in suitable cases.

2. *Sea Air.*—This cannot be left out of account in dealing with our subject, for sea air is always breathed whilst bathing, and, be it remembered, at sea level.

Now what are the qualities of sea air which give tone to the system, strengthen our energies, increase the appetite, and give that feeling of well-being to most people who come to the seaside?

In the first place, we inhale more oxygen and less carbonic acid in a given volume at the sea coast, because of breathing the air at sea level. This will necessarily produce a greater metabolism in the economy of the body, so that old materials are thrown out and new ones produced.

Again, owing to the sea breezes, landward in the day and seaward at night, there is a constant change of air—an air which is practically always pure. Again, there is a greater uniformity of temperature, which is neither so high in summer, nor so low in winter as inland—a fact borne out by meteorological reports.

Upon this follows the consideration of the humidity of the sea air. As the sea is the great source from which the moisture in the air is drawn, so must the land which is by the seaside first share in this moisture. This greater relative humidity of sea air doubtless plays an important part in the benefits which accrue from breathing it.

Ozone is a constituent we must recognize as important in sea air. Its presence, I think, accounts for the great benefit which children seem to derive from residence at the seaside.

Lastly, in the sea air we have salt, iodine, and bromine, the principal constituents of sea water, the salt existing sparingly in the air, but of course more largely in the sprays. The iodine is mainly noticeable at low water, when the marine plants are exposed—thus people who bathe in the sea, or sit upon the beach or sands, or walk about in the immediate neighbourhood of the sea will inhale air containing the above. When the weather is rough and boisterous this saline and iodined air will be wafted far inland.

It is rather strange that while many Continental inland spas are using their saline waters for inhalation in the form of artificial throat sprays, we have in our home seaside resorts thought so little about the simple uses of our natural products.

3. *Selection of a Seaside Resort for Bathing or Otherwise.*—I suppose we can say that there is no country in the world so well provided with seaside holiday or health resorts as Great Britain and Ireland.

It has seemed to me to be an exceedingly difficult problem to gauge their respective merits. There must be considerable differences in aspect, amount of verdure, protection by cliffs or hills from the wind, and bathing facilities. Yet certain seaside places stand out definitely for the cure or alleviation of certain diseases. I am afraid some seaside places owe their popularity to advertisement. But we can say honestly that we possess in our seaside resorts an asset for giving health and strength unsurpassed by any other country.

We now arrive directly at our subject—namely, *sea bathing*. We must at once admit that few patients consult doctors about it. It is rather difficult to say why this is so. Perhaps it is because the sea is a domain which all can use when and how they like. If it were more inaccessible and more expensive to use, it would probably be held in higher esteem. Nevertheless, unless people are in robust health and within certain limits of age, medical advice should, as a rule, be taken before resorting to sea bathing.

I intend to refer only to the general principles to be observed in sea bathing.

Season.—This must vary with the position and aspect of the town. It is generally recommended between June 1st and October 1st. In my opinion June is too early for most people; the water is often very cold, and the east winds apt to be prevalent.

October may be a warm month, and when so bathing can be prolonged with pleasure and benefit; but really the best test is whether there is a good or bad reaction after the bath.

Time for Bathing.—My experience leads me to think that early morning bathing before breakfast was more common years ago than it is to-day; perhaps we were less luxurious and more strenuous. There are many people who enjoy the bath before breakfast, but they are strong, and do not require medical care; but the experience of men most able to judge is that the best time to bathe is between breakfast and lunch.

Duration.—There is one rule which must never be forgotten in bathing—namely, always leave the sea before the reaction stage ceases. Serious symptoms are liable to follow if this maxim is neglected. I have seen two cases of complete paraplegia follow on bathing, doubtless from haemorrhage into the spinal cord; one recovered, but the other remained paraplegic. I suspect many cases of drowning from syncope have been due to the effect of the cold on the nervous centres. It is usually stated that from five to fifteen minutes is the proper time, and for non-swimmers the former time is sufficient.

After the Bath.—Slow dressing is as bad as slow bathing, for in both heat is lost, to the detriment of the bather. A rough towel is of more use for the friction it produces than for the drying; and the glow of the skin following the towel exercise should be maintained by a brisk walk, followed by a moderate meal.

Mode of Bathing.—Open beach bathing is only fit for the robust, and tents do not afford the protection of wooden machines. Every one who uses sea bathing for health purposes should know fully the rules I have sketched above.

Treatment of Diseases by Sea Bathing.

Let us consider the diseases which seem most benefited by this practice, and afterwards those which are not improved by it. I think the convalescents from acute disease—those run down from overwork, mental anxiety, or general fatigue—derive the most benefit from sea bathing, but the precautions already mentioned must not be neglected. Again, strumous and tuberculous cases do especially well. Rickets is another disease which improves under this treatment; but here, as with tuberculous cases, time is the great requisite. Most forms of atonic dyspepsia do well, as do the milder forms of catarrhal affections. Asthma behaves, as it always does, most erratically. Some cases do remarkably well, others do badly.

It is interesting to note that dermatologists very seldom send skin cases to the seaside. I suppose there must be some reason for this, although my own experience leads me to think that the influence of sea air and sea bathing has not always this deleterious effect. I admit some cases of acute eczema do badly.

I feel sure that anaemia is more common at the seaside than it is inland; but, whilst saying this, please remember that treatment with iron, good feeding, and sea bathing give satisfactory results.

In rheumatism, warm sea bathing is preferable to cold, but I believe whenever it is possible it is better for those thus affected to live in warm and dry climates.

The disease of women most benefited by the sea is leucorrhoea; the mere residence at the seaside will often effect a cure, but, when combined with bathing or injections, the results are most marked.

Many cases of hysteria and neuralgia do particularly well at the sea.

Lastly, there are diseases in which sea baths are not to be recommended—namely, advanced heart disease, asthma, bronchitis, Bright's disease, rheumatism, acute gout, and all other acute conditions; for here the sudden cold to the skin and subsequent flushing of the internal organs, with an absence of reaction, may lead to serious consequences. The same remarks apply to young children and old people.

Among the minor maladies which may at the outset be aggravated by sea bathing or even by sea air the most tiresome is an attack of "biliousness" followed by insomnia. The best remedy is a dose of blue pill, followed next morning by a saline draught.

DISCUSSION.

Dr. G. MAHOMED (Bournemouth) said he had been struck by the fact that some very well-nourished persons of excellent physique and of lively disposition disliked, or even received harm from, sea bathing; whereas others, who were weakly and lethargic, derived great benefit. In explanation of these phenomena he offered the conjecture that sea bathing acted as a stimulant to secretion of the thyroid gland. As a consequence, those in the first group, whom he supposed to be already well supplied or over-supplied with that secretion, would be inconvenienced by a procedure which further augmented the dosage. Conversely, weakly subjects who might be held to be suffering from thyroid deprivation would certainly be benefited by measures which led to greater activity on the part of the gland.

Dr. W. D. JOHNS (Bournemouth) said: During the fifteen years that I was medical director of an open-air sanatorium at Bournemouth I was in the habit, every summer, of taking about a dozen patients to bathe two or three times a week, and I have no hesitation in saying that of all the diseases benefited by sea bathing tuberculosis deserves a foremost place. I only remember one untoward event, when a patient, contrary to my instructions, would insist on diving, and managed to get a small haemorrhage, but nothing serious. I was never able to trace a single case of dry pleurisy—that great bugbear of the consumptive, and the circulation was always recovered immediately. The restrictions were few. Old swimmers were allowed to swim, but not dive. I encouraged swimming on the back in preference to the chest stroke. Non-swimmers were not encouraged to learn to swim. After the bath—and I believe this was the secret of success—I used to serve out hot milk all round, and the carriages were ordered to await us at the top of the hill so that the patients had a nice little climb up the cliff before taking their seats.

Dr. ODELL (Torquay) agreed with Dr. Tyson that it was a mistake to wash off the salt water, as was often done, but much better to rub well with a rough towel and allow the effect of the salt water to remain. He considered sea bathing infinitely superior to fresh-water bathing, but, in every case, the length of time should never be continued after there was the least feeling of chilliness. The benefit of *warm* sea baths could not be over-rated for patients whose nervous systems were overwrought. He mentioned one case in which great risk of life had occurred in a strong man who had jumped into the sea when he was in an exhausted condition from previous muscular exertion; and another in which the man died from heart disease brought on in rescuing an attempted suicide. He spoke of the value of sea-water packs in rheumatoid arthritis. He thought that the hot milk given by Dr. Johns to his patients, after bathing, was of the utmost value. Dr. Odell mentioned the value of seaweed baths in psoriasis, and spoke of the complete system of baths which was now in process of formation in Torquay.

Dr. W. KENNEDY (Bath) considered that for fairly strong subjects the best time for bathing was before breakfast. He held that the average time-duration of the bath usually laid down (five to fifteen minutes) was much too long. The utmost benefit accrued to elderly persons from sea bathing, and at the other extreme of life to very young children, under the closest possible supervision.

Dr. R. WHITTINGTON (Brighton) said that the time of immersion should be increased gradually. He referred to the beneficial effects of paddling in water of suitable warmth.

Dr. CLIPPINGDALE (London), dipping into history, said: The modernity of sea bathing as a therapeutic remedy will surprise any one who looks into its history. The ancients used sea water externally for all sorts of ailments, especially for diseases of the skin. For other maladies they used it internally as a purgative. They occasionally mixed it with their urine. It was used as a lotion for wounds. As such, Richard Wiseman tells us he found it useful when at sea with his fugitive Prince, Charles II; and Sir John Floyer, who flourished at Lichfield in the reign of James II, and who founded in

Lichfield the first public bath in this country, also praises the external and internal use of sea water, but he only makes one reference—and that a very casual reference—to immersion in the sea itself. The first author to deal with sea water and sea bathing as remedial agents was a foreigner, M. T. Bartholin, who, in 1671, wrote a work advocating the use of sea water as a remedy for gangrene. M. Bartholin was followed by another foreigner, Mons. Lanzoni, who in 1699 advocated its use in cases of herpes. The first English author was Dr. T. Speed, of Oxford, who wrote his book in the year 1755. Speed's work was included in the first edition of Dr. Richard Russell's work published in 1756. This Dr. Russell was, of course, the physician who did so much to make Brighton, as a health resort, famous. Russell, in the second edition of his work, published in 1769, states that he had only tried sea water in cases of enlarged glands. He had tried it, however, in such cases with so much success, that he intended trying it for other disorders, and it is interesting to note that he found those who made a living by picking up sea shells at Brighton seldom suffered from caries of the teeth. Russell's book is well worth purchasing by any one interested in the subject who can hear of a copy. Following Dr. Russell was Dr. T. White, who, in 1775, issued a warning against the excessive use of sea bathing. After this the literature of sea bathing, both in this country and abroad, becomes voluminous. In sea bathing, as in other things, fashion gives an impetus, and the impetus to sea bathing in this country seems to have been given by George III and his family, who went to Weymouth for the purpose in the summer of 1789, and repeated their visit nearly every year afterwards for about a dozen years.

Dr. TYSON, in his reply, expressed a general concurrence with the remarks which had fallen from the various speakers. He said that the duration of the bath should be measured by the capacity of the bather for exercise. Properly conducted paddling he believed to be very beneficial to children. He thought that rheumatic subjects often did badly at the seaside.

DISCUSSION ON INTERNATIONAL ASPECTS OF BRITISH HEALTH RESORTS.

OPENING PAPER.

By NEVILLE WOOD, M.D., M.R.C.P.

I WISH to preface my remarks by saying that the term "health resort" in this communication is used in the restricted sense of a place to which patients are usually sent for a comparatively limited time and for a definite course of treatment. It is the equivalent of the German word *Kurort*. I should add also that in advocating active measures for the attraction of foreigners to our shores, I refer only to invalids and persons accompanying them, and not to tourists or travellers.

In a paper read before the Royal Society of Medicine in 1910, I was able to travel over the whole field of the subject we are about to discuss; but to-day a more severe time limitation compels me to confine myself to an endeavour to show that we may reap advantage from pacific penetration by the foreigner and to enter a plea for assistance in the furtherance of this object.

The specific merits of our insular climate for certain categories of foreign patients, though so great as to justify the use of the term "overwhelming," are practically unsuspected on the Continent and imperfectly appreciated even in America.

Hitherto, in the face of a vast annual emigration of British invalids with no corresponding influx from other lands, the efforts of our municipalities have been confined to begging the leaders of opinion to set their faces against this exodus. That, I contend, is a policy weak in dignity, weak in a suggested inferiority which does not exist, and weak, above all, in the arguments used in its support. Not thus is the balance to be redressed. A substantial number of the invalids of every country do unquestionably benefit by being sent to some other land for change. Let the authorities of our home resorts frankly recognize this fact in its application to Britons. When they have done so they can, with a greater prospect of success, urge the acceptance of the same principle in a plea for reciprocity from abroad.

Among the countries of Europe possessing important health resorts England alone pursues a narrow policy of isolation. It becomes necessary, therefore, to look abroad to find what may be gained by the substitution of one which is more progressive. The most striking fact, and one which at once compels attention, is that by far the largest profits from the health resort industry are reaped by that country which makes the smallest effort to keep its nationals at home; yet, numerous as are the foreign patients attracted, they are always outnumbered by the native-born. In the country referred to, on the opposite shore of the North Sea, the courses of treatment at the spas, together with the sale of mineral waters, bring in annually a revenue of 19 millions sterling, while it is estimated that if to this were added the sums spent by visitors in the health resorts, the gigantic total of 40 millions would be reached. Thus, by appealing to figures, we find proof that the fullest measure of esteem at home and the greatest prosperity are attained by the establishment of prestige abroad—a prestige based on efficiency but fully established by great ability and untiring energy in maintaining publicity abroad. It is only in this lack of world-wide prestige that our health resorts compare unfavourably with those of the Continent.

It is unfortunately the case, however, that not a few Englishmen, especially among the wealthy leisured class, take it for granted that Continental spas occupy a higher plane than those of our own country—an opinion shared by some members of the medical profession. With such persons argument in detail is in vain, but were we in a position to state that foreign experts prefer our spas for some groups of their patients, the prestige of the British resorts would at once be assured, and we should have less difficulty in prevailing on the larger number of our invalids to remain at home.

The advantages of prestige cannot be set down in terms merely statistic. It is the very breath of life in health resort practice, bringing in its train confidence in ultimate recovery and a cheerful willingness to submit to necessary discipline. These are considerations which will be appreciated by those practitioners who complain of the difficulty of obtaining proper control over their patients. It rests with British physicians and those who control our health resorts to place this prestige on a sure footing.

We are in a position to show that we possess spas of the highest rank and of very great variety, from the very quiet to the sufficiently gay; spas with a finely graduated scale of springs, from the feebly mineralized to the most highly concentrated in Europe, and many of them equipped with every useful appliance for physio-therapy. In every one of them I believe there is model sanitation, while the facilities for health-giving outdoor exercises and recreation are unsurpassed in the world.

Let us turn now to the inland "climatic stations," a term which refers to places where excellence of situation is combined with organization for the special needs of invalids. Inland, then, we have villages and small towns in addition to large tracts of land almost uninhabited which would well repay the attentions of the capitalist were he sure that when his task was completed their fame would be spread throughout the world.

Even if time permitted, I should leave to subsequent speakers the discussion of our seaside resorts, which have justly been called the "glory of England," for I know that at this meeting there are authorities on the subject from whom I should only wish to learn; but members representing Brighton will perhaps bear with me if I quote some opinions on London-by-the-Sea held in London-on-the-River. Brighton is spoken of as a convenient and healthful dormitory for the metropolis, as an accessible spot for week-ends and Sunday luncheons, and as a place for permanent residence possessing many amenities. We know Brighton, in fact, as one of the most important of healthy resorts. To what extent you desire us to regard it as coming within my definition as a health resort, and whether in any month it is, in the jargon of the spas, contraindicated, perhaps you will enlighten us.

I ask for the co-operation of members of the profession in bringing to the notice of our foreign colleagues the

advantages offered by the health resorts of Great Britain. The first step has already been made by the publication of a volume in which the leading resorts are described, and special cognizance has been taken of international aspects.

As the next step, I would suggest the production and wide distribution of pamphlets giving much fuller topographical details, written in the chief European languages and especially designed for the purpose in view.

The profession, too, might fairly urge on those in authority that they should make some concessions to the taste convenience of the foreigner, as he has made many to ours, though I believe that our resorts would lose rather than gain in attractiveness in his eyes if they too radically ceased to be British, and so foreign—to him.

Finally, there is an aspect which, though partly commercial, demands mention, since on it has been founded an objection to the whole project now under discussion. It is that during their chief season many of our resorts are already full to repletion. However true that may be of some of them, the practical answer furnished by those who are in a position to know, is that the greater number of the Continental visitors to our shores between the months of spring and autumn come before our summer season is in full swing, while Americans arrive for the most part when it is on the wane. I am informed, too, that those of our health stations which enjoy a winter season are never at that time actually overcrowded.

In a discussion of the subject I would suggest the following issues as full of interest:

1. What have British health resorts to gain from the advent of foreign invalids?
2. What steps should be taken by British medical men to inform their foreign colleagues of the therapeutic resources bestowed upon these islands by Nature?
3. What measure should be taken to supplement the amenities already existing with a view to the attraction of a larger number of invalids and their companions from foreign countries, from our dominions overseas, and from our own country.
4. What are the methods by which we may add to our therapeutic resources or render them more efficient?
5. What are the most distinctive advantages of our health resorts, and for what categories of invalids, British or foreign, are they specially indicated?

DISCUSSION.

Dr. Gordon (Exeter) said: In the large debt which British health resorts owe to Dr. Neville Wood, not the smallest item is the movement he has started to draw foreigners to this country for certain advantages which the Continent does not offer. In Devon and Cornwall there are many places whose merits are just beginning to be understood, but for the purpose of this discussion I must limit myself to their southern coast. Its climate is remarkably equable (the Scillies are perhaps the most equable place in Europe), with a mild, moderately warm winter, moist yet not too rainy, sunny, and greatly wind-sheltered. Such a climate should benefit the more irritable dry varieties of respiratory catarrh. And actual experience has abundantly proved that it does. There are parts of Europe where such catarrhs are common. Why do they not send their patients so suffering to the south coasts of Devon and Cornwall? It would be much to their benefit if they did. In South-East Devon also, not only is bronchitis uncommon, but rheumatic fever is also rare, and heart cases in my experience consequently do remarkably well. It will be well worth considering whether heart cases from abroad might not derive very real benefit in South-East Devon. That, however, remains to be tried. The experiment is necessary in respect of irritable bronchitis and laryngitis in all the sheltered resorts of the southern coast of the two counties.

Dr. Copeman (Brighton) felt sure that British health resorts were far too little advertised abroad. He deplored the linguistic deficiencies of British medical men.

Lieutenant-Colonel W. Burke had satisfied himself, by personal observation, that some of our spas were as well equipped as those of the Continent. Alluding to the specific value of change, he cited some remarks made to him by a Carlsbad physician whose patients were cured by remedies applied at that spa, although exactly the same measures when made use of in their own homes had proved inefficacious. He found fault with the management of English hotels, and believed those of Switzerland to be much superior.

Dr. Paley (Brighton) agreed with the opinions expressed by Dr. Neville Wood, and regretted that British doctors set so little store by the health resorts of their own country.

Dr. Neville Wood, in his reply, thanked the members of the Section for the attention they had given to a topic presenting many elements of novelty. He discussed some of the means by which British health resorts might be rendered more attractive to foreigners. With the generous aid of local members of the profession visits were being planned for foreign visitors to the forthcoming International Medical Congress to some of our leading health resorts, among them being Bath, Harrogate, Leamington, Llandrindod, Droitwich, and Torquay.

A CRITICISM OF METHODS OF TREATING PHTHISIS BY "CLIMATE."

By H. de Carle Woodcock, M.D., M.R.C.P., D.P.H.

I have spent so vast a number of dulled hours in collecting and arranging statistics that I am rejoiced at the thought that in this paper statistics will have little place.

Dr. Gordon of Exeter set me on my present trail. He has long studied the evil effects of exposure to rain-bearing winds, and has recently lamented our ignorance of climatology in relation to disease. There are certain differences in phthisis mortality of, say, stations on a hill-side. Admitting Dr. Gordon's decimal points of difference in different stations of the same locality, I ask myself, Is this knowledge of much value to the physician seeking to find a suitable locality in which to place his phthisical patients? And with this unanswered question in my mind, I began to review the wide question of the climatic treatment of patients suffering from phthisis, remembering the variety of types of phthisis—for instance, the coarser type, slow in its decay; and the finer type, in which so often beauty seems the sunset of health.

At time not distant no one threw doubt upon the value of climate as a factor in the cure of pulmonary tuberculosis. Our lung patients were, whenever possible, directed to a sunnier land. It was assumed that a sunlit land was an impossible country for the tubercle bacillus, and a theoretically perfect country for the patient. Patients started on a long pilgrimage, which oftener than not included a Calvary.

Of course, it was always possible to quote the optimistic evidence of the survivors. Clifford Allbutt brought back conviction from Davos and Arosa. Bennett discovered Mentone, as Brougham had previously discovered Cannes. Other men have favoured Hyères.

Much might be said for Switzerland and the Riviera, notwithstanding the bitter winds of the latter; but what madness was it that sent our consumptives on long voyages to distant parts of America, to Australia, to Cape Colony? What evidence was there here of any insight into the knowledge of climatology in reference to the needs of the patient? A friend of mine was, twenty years ago, told to take her invalid husband by sailing ship to Melbourne. So great was the rage to send consumptives to Australia that nine people on this sailing ship died on the voyage and had to be buried from the ship's side. As directions to these people needing minute guidance for conduct were seldom given, the patient, I am told, rode forty miles on horseback on one day, and was prostrated with a severe febrile reaction. He presently died.

It is within memory how South Africa was another land of mirage for the consumptive. I have actually been asked to consent to men in the last stage of disease going to South Africa. Of course doctors know a lot more about South Africa now. The hundreds of returned soldiers who came back to die in our sanatoriums have doubtless

had something to do with our present absence of faith. I have sent patients to New Zealand, although the rapid immolation of aborigines might have prevented me. But a message from a patient of mine begged me never to send another. The hardships had nearly killed him when he wrote me. Then we have the Andes, praised by many, and Saranak Lake, where R. L. Stevenson stayed awhile. And, of course, there is Canada, where, so Father Ward told me, the great fear in the mission schools is phthisis. Then there is Egypt, where I have seen emaciated Soudanese spitting on the sidewalks.

What is the important factor in the very terrible death-rate among the blacks in Trinidad? These men contract tuberculosis more easily in this sunny land, and they all die of it, and die as of an acute infectious disease.

They have more sunlight and more phthisis in France, and who can explain the high death-rate in Ireland? The Irish is a great emigrant race, but in the United States, in a climate not virulent to the native-born American (though, again, virulent to the negro), the Irishman finds his death-rate as cruel as that of his motherland. We may find the solution of these varying death-rates, but not in climate, which gives one set of inhabitants an advantage over another set. Mr. Redmond and Sarah Grand state that Ireland suffers since it is drained of its best blood, but its best blood suffers and dies as easily in the United States. These facts make one easily conceive that methods of treatment are of much more importance than locality.

I am inclined to ignore the claim of theoretically perfect climates in the cure of consumption. Indeed, there is a paradox. I have found in Wharfedale and Airedale very successful sanatoriums surrounded by populations suffering quite severely from phthisis. It may be the benefit obtained from skilled attendance in Ireland, France, or Switzerland is not dependent upon the climatic conditions. Of course, a fog-producing river is part of the London climate, and these fogs kill consumptives, much as the sand-storms of Egypt or of Australia do.

Nordrach, within a forest, damp part of the year; Falkenstein, a broad open glade; Grabowsee, a sandy plain, have all cured their patients. On the other hand, sailors, who in Dr. Mead's time had a terrible phthisis death-rate, still suffer far too much owing to the horrible sanitary conditions of ships. I do not think the terms on which the tubercle bacillus lives depend much on the barometer, and the bacillus is at a constant temperature. Anyhow, a sheltered ease seems to me to be the best life for the sufferer from active tuberculosis, but this sheltered ease may be obtained in the worst of climates. In the non-febrile cases of phthisis methods of treatment in sanatoriums are even more independent of climate than in the febrile cases. It is, of course, not the purport of this paper to enter into details of treatment. Personally, I believe in comfort and shelter. A good income is a better preventive of consumption than is a good ancestry, though, of course, riches may chain a man to licentiousness. You must defy the hygienic conventions if you wish to prevent or cure phthisis.

I may appear to have unfairly attacked the prescribing physicians of twenty years ago. Many of their opinions were not theories but hypotheses, while, as Dr. Gordon has wisely said, climate has never been studied in a scientific spirit—at least, not in modern times.

DISCUSSION.

Dr. GORDON (Exeter) said: Dr. Woodcock has done good service in emphasizing the need for further work on the climatology of phthisis. There can be no doubt that in the past harm has been done by unsound theory—sometimes even by mere fashion. The subject is still more or less chaotic, but order should emerge to careful investigation. By "treatment" I assume he means open-air methods, graduated exercise, suitable feeding, and perhaps tuberculin in proper cases. There can be no doubt of the great revolution in phthisical treatment which open-air methods have effected. But suitable climates should aid such treatment. I have shown that in two neighbouring areas the course of the disease has been considerably modified by local aspect. I hope Dr. Woodcock's remarks will help to stimulate fresh work on the climatology of the disease.

Dr. GORDON EVANS (Davos) was of opinion that the treatment of pulmonary tuberculosis was more successfully carried out at high altitudes, such as Arosa or Davos. This was suggested by the well-known fact that consumptives did better in cold than in hot climates. Referring to the methods of treatment, he commended the induction of artificial pneumothorax by the injection of nitrogen into the pleural cavity, a procedure that might be repeated several times. By this means the lives of many apparently hopeless cases had been preserved, tubercle bacilli had disappeared, and the patients had resumed their occupations.

MASSAGE IN FIBROSITIS AND OTHER PAINFUL CONDITIONS.

By R. ACKERLEY, M.B.,
Llandrindod Wells.

AT most of the English spas a large percentage of the visitors who seek treatment are suffering from some form of fibrositis, which is often described as rheumatism, muscular rheumatism, or neuritis.

Before going to the spa the treatment adopted in their own homes has in very many cases been directed mainly to relief of pain; rest has been enjoined, analgesic drugs have been given, often until the heart has suffered; potassium iodide until the digestive organs have been upset; soothing liniments have been applied; and the patient, or parts of him, have been baked or parboiled or electrified in various ways. If and when these means have failed to give relief, he is advised, or allowed, to go to a spa for treatment, and in many cases in worse, and not better, condition than he was some days, weeks, or months previously.

The failure to cure has often been due to the fact that no serious attempt has been made to ascertain and treat the fundamental cause or causes of painful conditions. But, apart from fundamental causes, mere rest, anodynes, and heat are calculated to give at best temporary, and not permanent, relief.

It is impossible to be certain and foolish to be dogmatic about the exact way pain is caused in the cases which I have referred to, but it seems probable that it is caused in one of the following ways: (1) Irritation of nerves by toxins, etc., circulating in the blood;[1] (2) direct injury and laceration of nerves; (3) by nerves being involved in fibrous nodules, or being compressed by fibrous or inflammatory tissue; (4) or by nerves being pulled on during movement owing to fibrous adhesions either of nerve sheath or of muscle or tendon. Comparatively rarely, in my own experience, is there, or has there been, any definite inflammation of the nerves themselves. In recent injuries, besides the tearing of small nerves, the pain seems to be due mainly to the pressure on nerves owing to haemorrhage or serous effusion.

For the permanent relief of all these conditions skilled massage discreetly given is the most efficacious in obtaining rapid permanent relief. As supporting this view, I can quote the advice of Professor Stockman, Dr. Maxwell Telling, and many others, including for recent injuries, Professor Lucas-Championnière. I am, however, frequently told by patients that their doctors have forbidden massage; and one finds in the Harveian Oration delivered by Dr. Luff statements such as the following. Speaking of fibrositis he says: "Massage is very useful in the later stages, but it should only be employed when it causes no pain. The manipulations should be very gentle at first, so as to promote removal of exudation and to relieve the tension. Afterwards more vigorous massage is most efficacious in dispersing the indurations and fibrous thickenings, and in removing the stiffness of the affected parts. General massage should not be employed, but the tender and affected areas should be carefully marked out for treatment. Massage should not be used to affected joints, but only around them, so as to improve the circulation in their neighbourhood. I have frequently seen the most disastrous results to joints from their over-zealous manipulation by masseurs and masseuses, as such treatment only increases the inflammation and bruises the synovial fringes. The same remarks apply with equal

force to acute affections of the bursae and tendon sheaths, and to fibrositis of nerve sheaths until the acute affection has entirely subsided." And, "In cases of chronic subcutaneous fibrosis in very fat people (adiposis dolorosa) massage is quite ineffective, and often unbearably painful. In such cases it is essential, first of all, to get rid of the superabundant fat by means of a strict diet, and by the administration of thyroid gland."

Now one grants at once that unskilled massage is bad—and I agree with Dr. M. Telling that the country is being flooded with imperfectly trained masseurs and masseuses who have neither the requisite skill nor experience for treating injuries or diseased conditions; but that is no justification for the condemnation of massage by persons with proper experience. But apart from that I find myself in definite disagreement with Dr. Luff. Massage does not give the immediate relief of the anodyne; but time after time in my own practice I have found that where patients have been kept at rest and had treatment by hot air or ionization, and taking some analgesic drug, say aspirin up to 45 grains or more a day, with only partial relief of pain, when one has stopped all drugs and used massage only, the sum of pain even in the first week has been greatly reduced. The analgesics do nothing to remove the *cause* of pain; the massage does.

To go over the suggested causes of pain, it is obvious that, owing to the improved circulation due to massage, toxins will be removed from the painful areas (and fibrous nodules are found sometimes after a preliminary swelling to disappear often with extraordinary rapidity), tension is relieved by the emptying of engorged vessels and lymph spaces; adhesions are broken down, so that nerves are not pulled on by the contraction of muscles, the movement of joints, or the pull on the nerve by the nerve sheath. In recent injuries, such as fractures and sprains, the reduction of swelling and consequent lessening of pain by massage is so rapid that one cannot understand why it is not universally employed. I have known even a young and nervous child within a few days of a bad fracture of the forearm welcome the arrival of a masseuse, because he knew that she would leave him more comfortable than she found him.

In sprains not only is there vastly less pain owing to the use of massage applied as soon after the injury as possible, due no doubt to the reduction of the swelling, but as the ends of the torn structures are able to come into apposition much sooner than they could otherwise do the healing process is greatly accelerated, and, if movement is continued from the first, stiffness and deformity do not occur.

In all cases of recent injury, and any acute or subacute inflammatory conditions, massage should always be begun at a little distance from the inflamed part, so as to empty the lymphatics and produce a more active circulation away from the seat of injury. The hand should gradually approach the painful part, but, as a rule, a skilled masseur will be manipulating the actual injured tissue at the first sitting with relief to the patient.

It has been my practice for some years past to use massage in cases of gout. The condition of the tissue round the inflamed joint is suggestive that, so far as the local condition goes, the body is attempting to get rid of some toxic material, the redness and swelling being due to the blood that is thrown, as it were, into the inflamed part in an endeavour to remove toxins. The encouragement of this by skilled massage, beginning, I may repeat, above the seat of inflammation and gradually getting down on the joint itself, gives such excellent results, so much better than those I have been able to obtain by any other method, that one would like to demonstrate on a case of gout the use of massage in painful conditions.

I will now mention some illustrative cases. H. R., aged 51, had been suffering from general rheumatic pains, followed by acute sciatica, from January of this year. He was in bed for a month with various treatments of the anodyne type, and in the middle of March had some ionization with temporary improvement. In May there was a recrudescence of the sciatica, and for a month, to use his own words, "he was entirely unable to sleep or even remain in bed, and could hardly walk." All previous remedies entirely failed to give relief. I saw him on June 2nd of this year. He looked exceedingly ill; was worn out from want of sleep, even anodynes having very little effect, and, as he says, the pain was so acute that he could not remain quiet for more than a minute or so at a time. There was a good deal of pain and tenderness in the course of the sciatic nerve and adhesions of the sheath in several places. He began massage the day after I saw him. Within three days he was very much better, and in less than a week his nights were good; after June 13th he had no pain at night at all. On the 15th he walked four miles, and on and after the 16th he did a round of golf a day on a heavy course without pain or discomfort, and was, in fact, perfectly cured.

G. V., aged 48, had frequently suffered from attacks of lumbago, which usually confined him to bed for ten days and left him incapable of walking with comfort for some time afterwards; in fact, there was more or less chronic stiffness of back. On June 7th he had one of his usual attacks of lumbago, if anything more severe than usual. With massage twice a day, the pain, except for some in unnecessary movements, was gone. In three days he was walking about, and at the end of a week, except for some stiffness far less than he had had previous to his attack, he was free from discomfort.

H. G., aged 44, had several fairly acute attacks of lumbago, and for nine months had had severe sciatica in the right leg. He suffered very considerably from pain when he sat down, and walking was almost impossible. He had light baths and other treatment on two occasions at one of the spas, but without any good result. He came under my treatment on July 16th, 1912. It was quite obvious that the pain was mainly due to perineuritis on the right sciatic nerve, with adhesions, but there was also some general fibrositis of the lumbar region. He was at once put under massage by a Swede, and his course was one of uninterrupted improvement. In less than a month he was perfectly well, and has remained well up to the present time.

In chronic fibrositis, which is very often designated neuritis, it is quite common to see patients who have undergone almost every kind of treatment, including ionization, and have obtained relief only at the expense of mobility, who after a few days of massage suffer less pain than formerly, with improved movement.

The last two cases I give are those of painful fat. The first a woman of 60, definitely obese, with deposits of painful fat, especially about the neck, abdomen, and buttocks. She had taken various forms of treatment, including the administration of thyroid extract and ionization, without any perceptible relief. Under this treatment she was putting on weight; under massage the tenderness rapidly diminished, and the weight decreased. The massage has been continued intermittently for the last year, and she is now practically well.

In the second case, M. D., a lady aged 53, a hopeless prognosis had been given on account of the condition known as Dercum's disease (adiposis dolorosa). Even light pressure on practically every part of the body was painful; she could not sit or lie down without pain, and there was that extensive bruising on slight pressure which is not an uncommon feature in this condition. Under massage of less than a month's duration, except in one or two places the pain and tenderness entirely disappeared, and a subsequent short course at her own home removed all traces of disease.

In all these cases any treatment which aims at mere relief of pain without taking account of the underlying condition cannot secure permanent relief, and in Dercum's disease it is not the fat but the inflamed fibrous tissue which requires treatment.

As regards gout, among other cases, I have notes of two of men over 63, both obese, whose lives for years had been miserable on account of recurrent attacks of the malady. Both of them consented to treatment by massage; for two or three weeks the several joints were treated in the acute condition, and the massage was continued for about six weeks. The result was that not only were these attacks shortened in length of time but an immunity was obtained from subsequent attacks, which has lasted for between two and three years, a much longer period than had ever existed before.

In conclusion, I should like to say that to treat pain as the main symptom which requires relief, and to obtain temporary relief from that without reference to the future condition of the patient, is a mistake. On the other hand,

to aim at removing the causes of pain, even at the risk of increased pain temporarily, is the right course to pursue.

REFERENCE.

[1] Adami, *Principles of Pathology*, 1910, vol. i, p. 448.

THE DISTRIBUTION OF CANCER CASES IN TWO REGISTRATION DISTRICTS OF NORTH-EAST CORNWALL.

BY

W. GORDON, M.D., F.R.C.P.,
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AND

W. F. THOMPSON, M.D., C.M.,
Medical Officer of Health, Launceston Union.

THE evidence we are able to place before you is slight and the conclusions negative, but the facts seem to justify our stating them.

The contiguous registration districts of Camelford and Launceston, in the north-east of Cornwall, present a marked contrast in respect of their cancer death-rates. Camelford has one of the lowest in England, Launceston one of the highest in the south-west. It appeared, therefore, desirable to inquire into the precise distribution of the cases, in order to discover whether any reason could be assigned for this inequality. Accordingly the location of all deaths from cancer occurring between 1897 and 1907 in both districts were marked as exactly as possible on an ordnance survey map of an inch to the mile scale.

[A series of maps were then shown. The first was an orographical map to illustrate the relation of the cancer deaths to the configuration of the country; the second a geological map to indicate the relation of the cases to subsoil; the third was a map tinted in colour scale to represent the distribution of the disease in the parishes.]

The best-known suggestions hitherto made regarding the conditions which may affect the prevalence of cancer are:

(1) That the disease is relatively common in low clay levels along rivers which flood their banks,
(2) but relatively rare on higher drier ground;
(3) that geological structure affects it, in so far as it is said to be relatively uncommon on limestone;
(4) that it is prone to occur amongst trees
(5) and to recur in the same house.

Now if you examine these maps, I do not think you will be able to trace any distinct tendency in the disease to follow the course of the rivers, except in so far as the habitations follow them, since many of the heights consist of bleak and barren moor; nor any special prevalence amongst woods or in single homesteads; nor any influence of geological structure, although the chief soils lived on are associated elsewhere with a marked contrast of prevalence in the case of another disease, phthisis—phthisis tending to be common on millstone grit and uncommon on "Devonian."

The one fact which does seem to stand out clearly in this cancer distribution is its want of uniformity, its tendency to form "pockets." Why this is so we cannot say. We cannot even tell how much these "pockets" may be due to chance. The fact of their occurrence, however, in this small area may be worth remembering when wider areas and longer intervals of time are brought under consideration.

DISCUSSION.

Dr. ACKERLEY gave expression to a provisional belief in the existence of cancer virus. In the town of Ashburton in South Devon he had found that along the course of a stream which ran through the town there were houses in which there was an unduly large incidence of cancer. In one house three successive occupiers, unrelated in blood, developed carcinoma. In Surbiton he knew of four houses in which, in the last thirteen years, eight people if not nine, long resident in those houses, had acquired and died from cancer. He had suggested that the rodents of "cancer houses" should be more carefully examined, and thought that valuable information might be obtained from the investigation.

Dr. ODELL (Torquay) quoted instances of house infection.

Dr. WOODCOCK remarked on the fact that in the East infected houses are deserted after the death of the patient.

Dr. GORDON replied.

THE RATIONALE OF THE PLOMBIÈRES DOUCHE.

By CHARLES W. BUCKLEY, M.D.,
Physician to the Devonshire Hospital, Buxton.

THE Plombières method of intestinal lavage has now taken a prominent place in the armamentarium of our leading spas, and that it has gained this position on its merits will not be denied by anyone who has had practical experience of its use. There are, however, still those who scoff at this method, just as there have always been at any new method of treatment, and one of my objects in writing this paper has been to explain its underlying principles. Established first at Plombières, it was soon taken up at Châtel-Guyon, a spa which had already earned a reputation for the treatment of abdominal disorders. It was introduced into this country early in the present century, and has rapidly come to the front owing to the excellent results it has given in a great variety of cases.

Intestinal lavage is no new thing, but there are very considerable differences between the Plombières douche and the ordinary enema. The douche is given by means of a soft rubber tube of some 10 or 12 in. in length, and this is inserted into the rectum as far as it will conveniently go—generally from 3 to 5 or 6 in. This tube is connected by means of another to the reservoir containing the fluid to be injected, which is graduated so that the exact quantity prescribed may be given, and fitted with a thermometer, that the temperature ordered may be strictly adhered to. This reservoir is suspended by means of cords and pulleys against a graduated scale, so that the pressure in inches or centimetres may be regulated.

The quantity of fluid injected is generally from 1 to 3 pints, and if it is allowed to run in slowly at a pressure of not more than 18 in. or 2 ft. it will pass into the sigmoid flexure and on into the colon by a process of antiperistalsis. Under favourable circumstances, if there is no faecal or other obstruction, it will thus reach the higher parts of the colon and even the caecum, as may easily be demonstrated by abdominal examination. It is retained for ten or fifteen minutes and then evacuated in the normal manner, carrying with it the whole of the contents of the colon. A second douche is sometimes given in a similar manner, the chief indications for this being either faeces in the rectum (in which case a preliminary douche will serve to clear them away and allow the second douche to deal with the higher parts of the bowel) or difficulty in expelling the water after it has been injected (in which case a second douche, given, perhaps, a little more rapidly, and stopped directly the impulse to defaecate is felt, will promote the desired result). In cases also of extreme constipation in which a large part of the colon is packed with faeces a single douche will be insufficient.

The temperature of the fluid injected must be modified according to the condition to be treated. In spastic conditions of the bowel and muco-membranous colitis it should be about body temperature, but in cases of atony of the bowel a lower temperature will be found more effective; it should not, however, be much below 90°, or painful contractions of the bowel may be set up, and even at this temperature there will be a tendency for the fluid to be expelled before it has been in the bowel long enough to exert a satisfactory effect. The injection is usually followed by an immersion bath of warm water in which a stream of hotter water is played from a large rose douche at a specified pressure upon the abdominal wall along the course of the colon. This has a stimulating effect upon the abdominal circulation and the intestinal movements.

Before considering the nature of the fluids injected and their special advantages or drawbacks it will be well to review the general effects produced, and they may be epitomized as follows:

The douche by its mechanical action removes faecal accumulations often of long standing, especially in atonic states of the bowel, where, although a daily action may have been kept up by the use of aperients, this has been insufficient and the recesses of the colon are packed with scybala. It removes putrefactive material which would otherwise be absorbed and produce harmful effects. It removes at the same time enormous numbers of bacteria and also the products of metabolism of the *Bacillus coli communis*. These products in normal amount tend to inhibit the development of foreign organisms, but if in excess they also interfere with the normal development of the *Bacillus coli* itself, which is essential to well-being. On these grounds I do not hesitate to say that the Plombières douche is the most efficient means we possess of overcoming those putrefactive processes in the intestine which are at the root of alimentary toxaemia. The futility of intestinal antiseptics (so called) is generally recognized; for even if they could be given in sufficient doses to exert their action at such a distance from the point of administration, the results would be undesirable; we do not want to sterilize the intestine, but to render its bacterial content as normal as possible—that is to say, to ensure the healthy activity of the *Bacillus coli communis*. Purgatives cannot procure this result in cases of long-standing constipation without setting up such irritation as may tend ultimately to produce the conditions it is desired to overcome.

In cases of muco-membranous colitis, and even in those less marked results of chronic faecal stasis which may be better described as mucous catarrh of the colon, the mucus is removed, often in long strings and casts and the irritated mucous membrane is cleansed and soothed by the washing, and put into better condition for carrying out its normal functions.

The effects of the douche are not limited to the interior of the bowel. The fluid which has been injected will be absorbed to some extent, the degree varying with the nature of the fluid used, the time for which it is retained, and the extent to which the intestinal mucous membrane retains its normal function. Hypotonic and unirritating fluids, which are the most suitable for this purpose, will be absorbed in the largest proportion. An effect which is sometimes observed after the first one or two douches is directly attributable to this absorption; there is an increase in the toxaemic symptoms which have been previously observed owing to the poisons which have been carried into the circulation by the absorbed water. This effect is, however, evanescent, since the free diuresis which results from the entrance of the water into the circulation speedily carries away these toxins.

It is usual to give a course of douches varying in number. I find that ten or twelve will usually suffice except in the most severe cases, and I allow an interval of a day, as a rule, between the successive administrations. Too long a course of douches given at too frequent intervals are apt to increase the atony of the colon which it is one of our objects to overcome.

The question of alimentary toxaemia and its treatment has received so much attention of late that I should have liked to deal with its treatment by the Plombières method in very much greater detail, but this is outside the limits of the present paper. I think, however, that it would be of considerable interest if a series of cases in which the *Bacillus coli* has been judged to be the cause of the symptoms were taken, and one half treated by Plombières douches, the other half by vaccines. While I should be loth to deny in any way the value of vaccine treatment, I have little doubt which group of cases would show the best results.

It is now desirable to consider in a little more detail how these effects are modified by the nature of the fluid used for the injection. Two special forms present themselves for consideration—the mineral waters, and artificial solutions of antiseptics or other substances.

The mineral waters may be divided into two principal groups: The thermal waters, also variously described as indeterminate, nitrogenous, and radio-active; and the saline waters, which include the sulphur waters commonly used. The following are best known, and may be taken as types:

Thermal Radio-active Waters.

Plombières.—The most radio-active water in France, contains a faint trace of arsenic. Total solids, 0.28 per 1,000.

Buxton.—Radio-activity 1.2 (apart from the gases). Total solids, 0.32 per 1,000.

Bath.—Radio-activity 1.7. Total solids, 2.0 per 1,000; contains also calcium sulphate.

Saline Waters.

Châtel-Guyon.—Simple saline, chief constituents magnesium chloride and calcium carbonate. Total solids, 8.3 per 1,000.

Harrogate.—Starbeck, which is, I believe, the spring chiefly used for this purpose, sulphuretted saline; chief constituent sodium chloride 1.5 per 1,000, earthy and alkaline carbonates 0.5 per 1,000. Total solids, 2.17 per 1,000. Old Sulphur Well: Sodium chloride 12.7 per 1,000, with about 1.3 per 1,000 of other chlorides. Total solids, 14.97 per 1,000.

Llandrindod Wells.—Sulphuretted saline; the solids, chiefly chlorides, vary from 1.8 to 6.2 per 1,000.

The artificial solutions are chiefly salines of the type of normal saline, and solutions of the sulphates of sodium or magnesium. Antiseptic solutions have been employed, but I have no experience of them. I have known picric acid solution to be used, but the effects were the reverse of encouraging. Perhydrol or dioxogen added to a simple saline are the only antiseptic solutions I have used, and I did not find they possessed any special advantages.

Of the mineral waters it may first be said that the beneficial effects of the first group depend chiefly upon their non-irritating effects. Upon the skin these waters have a soft silky feeling, a characteristic which will render them peculiarly welcome to an irritated mucous membrane. To their radio-activity some benefit may probably be attributed, but, in my opinion, we have yet to discover some of the most important reasons for the peculiarly beneficial effect of the waters of this group in the conditions for the treatment of which they have acquired such a reputation.

With regard to Bath, it may be noted that while for all practical purposes its radio-activity is the same as that of Buxton it contains a little calcium sulphate. To the sodium sulphate antiseptic effects upon the bowel contents have been attributed, the sulphate radicle uniting with the phenol and indol groups set free by the splitting up of the protein molecule, to form harmless substances of the type of indican. Whether the calcium sulphate in so small an amount can be credited with any such effect is a question which may be left to the medical men of Bath to demonstrate.

Of the saline waters Châtel-Guyon claims special advantages from the large amount, relatively speaking, of magnesium chloride in the water. This is credited with a special effect upon the intestinal functions.

The Harrogate Starbeck water and the Llandrindod Wells water may be grouped together. They are, like those we have already dealt with, hypotonic and in respect of the saline constituents are solvent of mucus. I am disposed to think that the sulphides are an undesirable constituent from the point of view of the Plombières treatment since they must tend to be irritating. This irritating effect is probably only slight and may then be designated by the less objectionable term stimulating.

The Harrogate Old Sulphur well water differs from those we have already considered in that it is hypertonic to the blood plasma. It will, therefore, tend to cause an exosmosis from the plasma rather than absorption, and this may be an advantage in certain cases; it must, however, be rather more irritating, and therefore contraindicated in the majority of cases.

I have referred briefly to artificial solutions; of these I think the most useful will be solutions of sodium sulphate or magnesium sulphate if antiseptic action is desired; they may, however, be found to be slightly irritating, in which case a simple solution of sodium chloride may be used, preferably isotonic. For Plombières treatment at home these artificial solutions are the most suitable; I do not advocate the use of bottled water from the spas.

I have not said anything about the drawbacks and dangers of the treatment. It is undesirable, certainly, in hypochondriacs to devote too much attention to the treatment of the lower bowel, but it must not be forgotten that often it is the want of proper treatment of this despised organ that has induced the hypochondriacal state. The chief contraindications are dilatation of the bowel to an extreme extent, ulceration of the bowel, advanced arterio-sclerosis, and cardiac weakness.

THE CLIMATE OF BRIGHTON IN RELATION TO DISEASE.

By EDMUND HOBHOUSE, M.D., F.R.C.P.,
Physician to the Sussex County Hospital.

THE climate of Brighton owes its special characters to the circumstance that the town has the sea on the one side and the South Downs on the other, and in fact is largely built on spurs of the latter formation. It is divided by a valley, down which a stream once flowed that has now long disappeared. The soil of the valley and part of the front on the sea level is alluvial with patches of clay or marl. Kemp Town is on chalk or a coarse conglomerate of chalk and flints known as "elephant bed," and the rest of the town, with the more elevated part of Hove, is upon chalk with patches of clay. The clay becomes more predominant as you go west, and the greater part of Hove west of Brunswick Square rests upon a thick bed of clay. The aspect of the town is S.S.W., so that it faces the prevailing winds.

The mean annual rainfall is about 25 in., and the average of rainy days 164. The most important point as regards the temperature is that the mean daily range is 11.6°, as compared with 16° at Greenwich and 17° at Uckfield. I do not consider that statements as to mean annual temperatures are of any value in the estimation of climate unless the differences are so great as to make comparison unnecessary.

It may interest you if, to illustrate the irrelevance of such facts, I refer to the Medico-Chirurgical Society's volume on the *Climates and Baths of Great Britain*. In the report on the climate of Worthing it gives a comparison with Brighton.

The table of the comparative temperatures of Brighton and Worthing for ten years drawn from the Meteorological Society's *Transactions* shows that the mean maximum and minimum temperature of Brighton throughout the year is about 0.7° higher than that of Worthing, the sole exception being the mean maximum for August, which is 0.5° higher at Worthing. This makes it very difficult to explain the climatic differences which undoubtedly exist. I have come to the conclusion that as regards the towns of the South Coast from Folkestone to Bournemouth there is probably on the average of a number of years very little difference in the matter of actual temperature and range, hours of sunshine, amount of precipitation, whether rain or snow, amount of fog, etc. The differences which undoubtedly exist must be due to differences of position, soil, amount of shelter to be obtained from winds. The advantages which are common to them all are those due to the fact that the sea absorbs heat slowly and parts with it slowly. It does not attain its maximum temperature till summer is really over, or its minimum till spring is well advanced inland. Therefore we find that the best time of year at Brighton is the autumn and early winter, and the worst the late spring. The winds coming off the sea in the spring are often exceedingly cold, almost as cold as the North-East. This is as true of the resorts in the Isle of Wight as at Brighton. I never realized this myself till a few years ago, when, after an attack of whooping-cough, I wished to find a warmer place than Brighton in March, and went to the Isle of Wight. I soon found that the spring winds were as cold there as at home. In this connexion I may say that I cordially agree with the remark of a Dr. Martin, who, writing many years ago about the climate, says, in connexion with Ventnor, "We have no good spring climate in Britain, whatever may be said or written to the contrary." That is the real truth, but what needs to be realized is that all seaside places suffer from cold winds in the spring owing to the unalterable physical fact that the temperature of the sea is then at its lowest.

If it is a delusion to suppose that Brighton is warm during the spring, it is equally so to imagine that it is hot in the summer; the fact is, as with other sea resorts, that the temperature during the summer months is almost always lower than inland. Not only is this so, but in hot weather there is almost invariably a breeze off the sea at night. Owing to the lower temperature of the sea, a really oppressive night at Brighton is almost unknown in my experience, and the change coming down from town during hot weather is startling. Almost the only exception to this rule is when, after a hot spell, the wind blows from the north and arrives heated by the warmth of the land. This belief, that Brighton is very hot in summer, is very widespread and utterly erroneous. I suppose it arises from the fact that most visitors spend or expect to spend their time on the front, and forget that sand and shingle are incompatible with shade. They forget that when the temperature is 80° here it is generally 90° inland. There is no doubt, I think, that the glare and absence of shade on the front produce the impression of great heat when the sun is at all powerful. On the other hand, the absence of trees is an advantage in the autumn when the leaves fall. To sum up, then, Brighton is at its best from September to the end of January, and it is quite a pleasant abode during the summer months, especially when the weather is very hot; nineteen days out of twenty it is far cooler than any place inland, whether town or country. The spring months are the worst, as in England generally; the fine days then are generally treacherous, like the Riviera, with a bright sun and a bitter wind.

Average Sunshine: Influence of Sea Currents.

I will now say a few words on the relation of the climate to disease, indigenous or imported. Ten years' experience in the out-patient room have forced on me the conclusion that the ailments treated there differ very little from those in any other town with a considerable poor population. It is the social and domestic conditions which are responsible for those diseases, not the climate. Anaemia, gastric troubles, rheumatism, tuberculosis in its various forms, rickets, are almost as much the main stock in trade of the assistant staff here as elsewhere. But it must be remembered that a very considerable portion of the population have come to Brighton because they were weaklings in one way or another. Therefore, the population is unfairly handicapped, and the death-rate is certainly increased to a considerable extent by cases which have simply come to Brighton to die. (The indigenous population of Brighton is very small; it is quite rare to meet with a family who have been in the town for two whole generations.) As a matter of fact, many who come to die recover and live long. But the question what diseases may arise in a climate under improper hygienic conditions is really quite apart from the question what conditions the same climate may benefit in those who come from other parts. No climate will prevent disease; it is notorious that phthisis may develop in Alpine valleys in ill-ventilated houses and anaemia in the purest air if the patient lives indoors. The mere fact of change is a very important factor, and Brighton is a highly stimulating climate to visitors, though old residents cease to notice it, just as they do the effects of any other tonic.

Early cases of phthisis, cases of arrested diseases with or without cavities, and most cases of chronic tuberculous troubles do very well here, provided they have a fair amount of resistance to cold winds. Phthisical cases with susceptible bronchial tubes and a marked tendency to catarrh should not be sent to Brighton. Haemoptysis is comparatively rare. Children with glands soon feel the benefit of the climate, and do remarkably well. It may be said also that children in general do remarkably well in Brighton, and grow up strong and healthy.

The climate is not recommended for chronic bronchitis, but many live here with suitable precautions in the winter. Renal disease is not common, especially large pale kidney. Stone is distinctly rare; it is hardly necessary to remark on the popular fallacy connecting stone with hard water. Acute rheumatic fever is rare in private practice; but slight rheumatic attacks, with endocarditis, are common among the poor. Rheumatoid arthritis is not specially common, and often does well here, if not too near the sea.

The Brighton climate is specially suited for building up convalescents from an acute illness, influenza, malaria, pneumonia, surgical operation; those who have been in India and tropical climates always find it favourable, and have since the days of Jos Sedley in *Vanity Fair*.

Some care is required on first coming down to prevent that condition difficult to define, but known by the public as an attack of liver. It is, I think, partly due to the effect of a sea climate and partly to the fact that appetite is stimulated on coming down, and, perhaps, too much food taken. Clinically it is the condition admirably described by Murchison years ago as "lithaemia."

The healthiness of the climate is proved by the fact that the town is never without one or two centenarians and large numbers of very elderly people, many of whom have resided in it for a great part of their lives.

DISCUSSION.

Dr. WHITTINGTON (Brighton) said that there was a considerable difference between the climate of Kemp Town and that of Hove. Although the latter place could not justly be described as relaxing, that charge was sometimes levelled against it by persons who had resided in Kemp Town.

Dr. COPEMAN (Brighton) had often watched with astonishment the rapid progress made at Brighton by convalescents from acute disease. The very keen air had, however, a disadvantage in some cases by over-stimulation of the appetite; but the "liverishness" thus induced might easily be overcome by an aperient taken on the second day after arrival. He uttered a caution against the chills which might be caught when the temperature was suddenly lowered by a sea fog. Remarking on the curious tradition which assigned certain places for the cure of particular maladies, he affirmed that surgical tuberculosis did quite as well at Brighton as at Margate.

Dr. GRIFFITH (Hove) spoke of the differences due to elevation. While the air was always bracing on the Downs, it was sometimes relaxing on the sea front. At Hove the lowest recorded figure for moisture was 43.4 per cent.

PANNICULITIS.

By D. DURWARD BROWN, M.D., L.R.C.P.Lond.,
Harrogate.

PANNICULITIS is a disease which has not received the attention it deserves. Possibly this neglect is due to its merciful nature. It is merciful in the sense that it never kills, but it is merciless in that it is an exceedingly chronic painful affliction. The successful treatment of panniculitis is emphatically satisfactory to the patient and consequently to the doctor, but to be successful it must be carried out with skill and patience. The medical man who can keep together his flock of panniculitis patients is not a physician only, but a diplomatist, for all painful affections tend to mutiny; hence it is that nearly all my patients have been treated by other medical men before consulting me, and in a great number of cases they have ultimately transferred their affections to other physicians.

Panniculitis has been aptly described by a French physician, Carl Molin, as "a disease quite compatible with life, but incompatible with comfort," and the same author says: "It disappears, leaving no traces (in the majority of cases) if properly treated; it is characterized by the greatest of all subjective symptoms—pain—and though the disease has an organic basis, it makes one think of neurasthenia."

When I listened to a doctor describing the symptoms as suffered in his own person, it was evident to me and to others that even he, a trained observer, was describing mental suffering based on a true physical cause, but to us the subjective symptoms described were so bizarre, that it was difficult to believe that this doctor was not the victim of an obsession.

I have more than once been humiliated by female patients leaving me and carrying to the next practitioner an indignant description of my unsympathetic stupidity. Indeed, patients suffering from this disease are trying to themselves, to their friends, and to their medical *man*—or may I say medical *men*?

It will be quite readily understood from the fact that the condition is not a mortal disease that I have not met with any *post-mortem* evidence. The pathology of the living—to borrow Moynihan's famous phrase—suggests that one should examine the little circulatory eddies during such an operation as laparotomy, and one author has done this and found in some cases indurations which have been associated with the seat of pain, yet after death there may be no indication of any nodules. Apparently there is anatomically more than one form of our nodule to be described; indeed, observers have spoken of infiltration, of plastic lymph or serous fluid, or, again, of single fibro-plastic indurations, and the other day the BRITISH MEDICAL JOURNAL added the term "angio-lipoma."

These nodules are certainly supplied with small veins and arterioles—in some cases, I am told, dilated. These tumours, if I may use the word, vary greatly in size, and are described as varying "from a grain of rice to a fetal head." Here I would mention that Dr. de Carle Woodcock, hearing of my interest in this subject, sent me a patient and an accompanying note, in which he stated: "I send you a case of adiposis dolorosa, and I have told the patient that you will call it panniculitis." The patient had been away from work for many months; her friends had told her she had nothing the matter with her. She looked robust in body, but one could see she was very conscious of the importance of her sufferings. Dr. Woodcock, in his note, said: "I can do nothing for her, but I have told her you will cure her in a month." She came, I saw, but did not conquer, for in less than three weeks she was on the doorstep of a neighbouring medical man, and some months later under the care of an irregular practitioner.

Now, this was a very ordinary case of panniculitis with hysteria, the panniculitis well marked all over the abdomen, giving the patient acute abdominal pain. She also had a slightly enlarged thyroid, and altogether she was an acutely neurotic person, who, because she was not cured in the first few weeks of treatment, became impatient, and refused to continue the treatment prescribed. From a relative who called to see me afterwards I found she had had an operation for appendicitis and curetting of uterus, both with no result. That speaks for itself.

Now in this case the medical man spoke of adiposis dolorosa, and though I would not say that very many cases described as adiposis dolorosa are identical with a form of panniculitis, yet if any one else makes the assertion I shall not dispute it.

In panniculitis the anatomy of pain—if I may use a confusing yet descriptive phrase—is not definitely made out, but it is sufficiently real to allow one to dogmatize somewhat on the treatment.

The etiology is quite obscure. I have found it in patients of a nervous heredity, especially in women with menstrual irregularities. Microbic infection has been blamed (for example, pyorrhoea), traumatism also. It is significant that benefit by thyroid treatment was observed by Dercum. I am much impressed with the association of this disease with those functional disorders which we, in our ignorance, call hysteria. In one case of hysteria with pain the nurse drew my attention to what she called eczema, and I found not only some exfoliation but nodules were running along the ribs, as if they were nodular and not vesicular, as in herpes zoster. Others have referred to dermographism in these cases. In some instances the pains of the disease have led to a suspicion of angina. In one of my cases the nodules were found running down among the branches of the brachial plexus and again along the sciatic nerves; indeed, panniculitis may give rise to a curiously wrong diagnosis, as in a case quoted, I believe, by Miss Jane Walker. In this case a surgeon had diagnosed appendicitis.

Treatment.—Pain is undoubtedly relieved by aspirin, etc., and the bath treatment of Harrogate, with the addition of massage, I always advise. Massage is the panacea for panniculitis. Massage is painful at first, and if carried out brutally may end miserably, as the patient will not long endure it. The masseur or masseuse must use prudence, must work softly and gently, and for a short time, and only apply firm and deep pressure when sensibility has considerably diminished. The masseur's technique is different for different parts of the body. The first treatment must be only a few minutes though it may be gradually increased up to the hour. Each day must bring its "bath" and massage, and this may in some cases go on for six months, or a year, or even longer. It is never safe to promise to cure in less than a month.

To summarize: I find the majority of cases in women, and in five distinct varieties.

Young women after childbirth.
Young women with neurosis.
Young women after operation.
Women after the menopause.
Women with abnormal thyroids or some other abnormality of metabolism.

Principal Symptoms.—1. Pain on manipulation, especially after rolling movements. 2. Pain simulating neuritis (but

due to pressure). (By pinching up the tissue you may get the dimply appearance of a fatty tumour, but note, there is always pain.)

Pathalogical Anatomy.—Evidence disappears after death.

Treatment.—Balneotherapy, including massage.

Finally let me say, I have laid great stress on these cases of neurotic tendency because they bring disappointment. Persons of this type have not the patience that is necessary; in every case the treatment is long and tedious, and requires a determination which neurotics so often lack. Speaking generally, a hopeful prognosis can be given; especially is this so in young adults, and still more when there is no pronounced neurotic tendency.

Dr. William Bain declines to accept the frequency of the neurotic tendency, but I am unable to agree with him, my experience absolutely supporting the views I have here expressed.

R. Stockman and Maxwell Telling have made observations on an allied condition, the latter giving it the name of "fibromyositis," but in this disease there is a definite anatomical lesion of a static kind (if I may use the word), whereas panniculitis is much more of a phantom disease anatomically, but dynamic in actual suffering, and deserves the respect of all clinicists, for it is a cause of intense suffering to a not inconsiderable number of their patients.

Dercum tells us of a case in which the thyroid gland showed atrophic changes, and improved by the use of thyroid extract, and in another case in the practice of the same physician there was a complete disappearance of all the neuritis symptoms coincident with a great diminution in the size of the fatty deposits.

DISCUSSION.

Dr. ACKERLEY said he agreed—as would be found on referring to his short paper on massage in painful conditions—very fully with the lines of treatment advocated by Dr. Brown. But he would like to make a suggestion as to the supposed neurotic element. He regarded this as part of the whole condition. He believed it was due to a toxæmia, and that the nervous system was poisoned and debilitated by the same toxins which, by irritating the fibrous tissue, caused fibrositis.

Dr. DURWARD BROWN, replying to observations made by Drs. Ackerley, Woodcock, and Blackburn, said that so far as he knew the nodules had never been examined microscopically. The nodules were found between the skin and the muscles, and were most closely grouped over the thighs, shoulders, and neck. He believed the disease to be a separate morbid entity, and he distinguished between it and the allied condition of fibrositis.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ECLAMPSIA.

TREATMENT of this terrible complication of the pregnant and puerperal state still being somewhat varied, I venture, having seen a recent article in the JOURNAL on this disease, to send the following notes relative to my own experience.

During the past thirteen years I have attended considerably over 2,000 cases of labour, and during this period have had in all 9 cases of eclampsia. Of these, 7 were primiparae, and, with one exception, young primiparae; of the multiparae, one had had several children, the other three. In 6 of these cases the fits complicated actual labour (in stages varying from the earliest dilating os to the head in the pelvic cavity); in 2 they occurred altogether prior to labour, and in the remaining case soon after the completion of the third stage. In every instance the urine was either, for the time, suppressed or almost solid with albumin; the convulsions have varied, in some cases they were very severe.

The plan of treatment to which I have invariably resorted has been, medicinally, the hypodermic administration of morphine (½ grain as a first injection, three or four two-hourly injections of ¼ grain being further given if the fits continued) combined with hot packs, croton oil, and, when the patient could take it, diuretic and diaphoretic medicine by the mouth.

As regards the induction of labour, if labour has not already commenced I first await the results of one or two injections of morphine, when, if no amelioration of the symptoms occurred, I bring on labour; if labour has commenced and be but in a very early stage, I act similarly; if, on the other hand, labour were reasonably advanced, I, whilst giving morphine, deliver instrumentally under cover of chloroform.

In two cases (in which the convulsions started prior to labour) this treatment sufficed to bring about a cessation of the fits, premature labour happening uneventfully a month or six weeks later; and, in addition, to save five of the remaining seven.

W. BOXER MAYNE, L.R.C.P.Lond.,
Swindon. M.R.C.S.Eng.

CALCULUS OF THE UMBILICUS.

THE report of a case of this condition in the EPITOME for July 12th recalled to my mind a very similar case I had in my practice many years ago. On looking up my notes of the case I find the following record:

On January 29th, 1901, a grocer, aged 35 years, consulted me about the condition of his umbilicus, at and around which he had pain and a sensation of "fullness and stretching." On examination I found the skin around the umbilical depression red, swollen, and very tender. The patient was unable to spare the time from business for a rest in bed. His skin was very unclean, and, suspecting the insanitary condition of the parts to be the cause of his local inflammation, I prescribed a lotion of boric acid to be used with a syringe. I gave him also a mixture containing mag. sulph. and tr. chlor. et morph.

On January 31st I saw the patient again—he had had to go to bed. There was now a considerable discharge of pus from the navel. The pain, which at first was local, was now felt (during any violent respiratory act) along the intercostal nerves on both sides. The man had had pneumonia, and was much alarmed by the character and situation of the pain. I was able to satisfy him about the healthiness of his lungs. I now ordered boracic fomentations.

On February 4th, on removing the dressings I discovered in them a hard oblong body, about ¾ in. long by ½ in. wide, covered with pus, having a very unpleasant odour. The pain ceased; pus continued to flow. Projecting from the navel was now seen a smooth, red, raw-looking surface. By cautiously passing a probe between this surface and the skin around it I found that it sprang from the base of the umbilical depression. On the lower right side the probe passed to a distance of 1 in. The patient's temperature was very slightly elevated throughout. Very considerable force was required to break the "stone." The fracture showed a concentric arrangement of alternate light and dark layers. I had the stone in my possession for a considerable time, and had intended sending it with a note on the case to the JOURNAL. This intention was never realized. In the communication I had then prepared for the JOURNAL I see I asked the question, "Is this substance inspissated wax?"

London. A. R. EATES, M.B.

SUBCUTANEOUS INJECTIONS OF ADRENALIN.

THE safe strength of solutions of adrenalin which may be injected has not yet been determined. Injections of adrenalin (1 in 1,000) have caused several deaths. It has been stated lately that dilutions of this with four parts of water were quite safe. On August 25th an injection of this strength into the nasal septum of a boy of 10 who was lightly under chloroform caused sudden stoppage of respiration with pallor. Fortunately, after three or four minutes of artificial respiration, etc., cause for anxiety passed. It seems, however, desirable to record the fact that even with this degree of dilution the adrenalin seemed to be the cause of a sudden serious condition, and I shall in future try weaker solutions still.

Leicester. F. W. BENNETT, M.D.

Reports
ON
MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

STATION HOSPITAL, DALHOUSIE, INDIA.

TWO CASES OF ACUTE HEPATITIS TREATED BY HYPODERMIC INJECTIONS OF EMETINE HYDROCHLORIDE.

(By D. H. C. MACARTHUR, M.B., Ch.B.Edin., Captain, R.A.M.C.)

IN the BRITISH MEDICAL JOURNAL of June 22nd and August 24th, 1912, Major Leonard Rogers, I.M.S., called attention to the specific curative action of the soluble salts of emetine in various classes of amoebic diseases. The following is a record of two cases in which this drug was used.

CASE I.

Corporal D., 1st Connaught Rangers, was admitted to hospital on October 13th, 1912, complaining of a severe pain over the region of the liver, and slight cough. The onset had been acute, the symptoms developing in twenty-four hours.

He had been a heavy drinker, and stated that he had passed blood in his motions two years previously, but had not been in hospital before.

State on Admission.—He had severe pain over the tenth intercostal space in the right mid-axillary line; it increased on pressure. Pain was also felt in the right shoulder. The pulse was 98, the respirations 19, the temperature 102.4°. He had severe rigors.

Physical Examination.—There was slight but very definite rigidity of the right side of the abdomen. The lower margin of liver dullness was at the normal limit, but the upper limit was at a higher level than usual, extending upwards in a dome-shaped manner into the axilla. The lungs, heart, and urine were normal. The blood showed marked polymorph leucocytosis. No malaria parasites were present.

Treatment.—He was put to bed on a milk diet, and calomel and mist. alba freely given. This produced a watery motion, but with no suggestion of dysentery, and no amoebae were found in the stools.

Having recently read Major Rogers's paper on the value of emetine in conditions due to amoebae, I thought that this was most probably a suitable case for its use, as it appeared to be in the pre-suppurative stage of liver abscess. Emetine hydrochloride gr. ½ was therefore injected, and repeated on each of the three days following admission.

Progress.—On the second day it was noticed that the hepatic area, chiefly over the right lower costal margin, was distinctly bulged. This area was tender on pressure. For the first week the temperature ranged from 100° to 102°, but from the third day the patient's general condition improved, pain diminishing in intensity and the rigors ceasing.

On October 21st the temperature began to rise again, and emetine gr. ½ was given. For the next four days the temperature continued above normal, and emetine was given daily. During this period the patient had no pain or tenderness, and felt quite comfortable.

On October 26th the temperature was normal and continued to be so throughout the remainder of his stay in hospital. Emetine was given every second day until November 3rd, when it was discontinued. The swelling in the liver region and increased dullness lasted for a considerable time after the acute symptoms had disappeared, and it was not until six weeks after admission that the liver resumed its normal limits.

Conclusions.—I think that this was a typical case of hepatitis which, without treatment, would have gone on to suppuration. During the first ten days I was more than once on the point of exploring the liver, as the rigors and leucocytosis were most suggestive of pus formation. The patient remained in hospital for some time longer, during which time he gained a stone in weight.

CASE II.

This patient was a native carpenter. He was admitted to the wards for natives in October, 1912, with a complaint of pain in the right side and fever.

State on Admission.—There was obvious bulging of the liver on the right side. Liver dullness extended as high as the fourth rib in the mid-axillary line. There was no downward enlargement. There was fluctuation, oedema, and great tenderness on pressure over the most prominent part of the swelling.

Treatment and Progress.—An aspirating needle was inserted and twelve ounces of typical liver pus withdrawn. Emetine gr. ½ was injected, and repeated daily for three days. The patient did not vomit, and was very much relieved, temperature remaining low for several days. On the fifth day it was noticed that pus was again accumulating, and a small quantity (between 2 and 3 oz.) was withdrawn. On this occasion a grain of emetine diluted in 2 oz. of saline solution was left in the abscess cavity.

Result.—Emetine injections were continued for three days, after which time, as the hospital had to be closed for the winter, I recommended the patient to go to Ambala to continue treatment at a native hospital there. He refused to do so, and said that he would return to his village and die there. He therefore left Dalhousie, and I heard nothing further of him until the beginning of January, when, on making inquiries, I found out that he had made a complete recovery without any further treatment, and was pursuing his occupation.

Conclusions.—I did not at the time consider this a suitable case for aspiration, as, on account of the fact that the pus was almost through the skin, I thought there was almost certainly some secondary infection. I had no alternative, however, as I knew that the patient would not go to another hospital on the closure of the one of which I was in charge. The patient was a heavy drinker, and I did not expect him to live long after leaving the hospital. I think the emetine injected into the abscess must have had a very effective result in destroying the organisms there, and thus produced a cure.

The points which I wish to emphasize in connexion with these two cases are:

First, emetine injections did not produce vomiting in either case. The great disadvantage of ipecacuanha by the mouth in the treatment of similar cases is the distressing vomiting, and the associated physical and mental depression which it so often produces.

Secondly, in both of these cases I think the necessity of open operation was avoided, together with its attendant risk of secondary suppuration—a risk which no aseptic technique entirely obviates in a hot climate.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BOMBAY BRANCH.

AN ordinary meeting of this Branch was held in the University College Library on April 10th, when Dr. SORAB NARIMAN presided. Major E. F. GORDON TUCKER, I.M.S., read notes of several cases of *Cerebro-spinal meningitis* now prevalent in Bombay, and treated by him in the Jamsetjee Jeejeebhoy Hospital. Drs. CHOKSY, R. ROW, SABAWALLA, A. POWELL, and others took part in the discussion which followed. Dr. R. Row gave a short account of the results of *Vaccine treatment in plague* during the last twelve months where he has been able to examine systematically the peripheral blood of every case by a simple bacteriological examination (by culture) at the bedside just before injecting the vaccine. Total cases treated, 87 (non-septicaemic 44, recovery in 35; septicaemic 43, recoveries 0). Percentage of recoveries in non-septic cases, 79.5; percentage of recoveries in septicaemic, 0. Assistant Surgeon A. K. TURNER, L.M.S., read notes on and demonstrated a new test for the detection of saccharine substances in urine. Notes on an unusual case of *Malarial fever with aphasia and dysphagia* ending in recovery were read by the Honorary Secretary (Dr. BARDI), on behalf of Assistant Surgeon R. M. Tembe, L.M.S.

At an ordinary meeting, held on June 26th, when Lieutenant-Colonel ASHTON STREET presided, Dr. A. POWELL and Lieutenant-Colonel ASHTON STREET, I.M.S., showed interesting specimens. Dr. Powell showed an instance of complete obliteration of the superior and inferior longitudinal sinuses from a case where sudden death had occurred, and Colonel Street a specimen where the obstruction in a hernial sac was due to a guinea worm. Major T. S. NOVIS, I.M.S., read notes of cases of gastro-enterostomy and intestinal obstruction under his care. Dr. A. K. DALAL showed a specimen of urine containing chyle and blood, sent to him for his opinion.

PUNJAB BRANCH.

AN ordinary general meeting of this Branch was held on July 22nd at Simla. Colonel C. J. BAMBER, M.V.O., I.M.S., Inspector-General of Civil Hospitals, Punjab, presided, and there were some twenty members present.

Fasting as an Aid in the Prevention and Cure of Disease.

Major AUSTIN, R.A.M.C. (retired), showed Mr. A., aged 49 years, as a successful result of treatment by fasting:

	Before.	After.
Weight	17 st. 1½ lb.	13 st. 2½ lb.
Measurement round abdomen	47½ in.	38 in.
Blood pressure...	150 mm.	110 mm.
Respiratory capacity	230 c.in.	250 c.in.

This patient had undergone a complete fast, drinking water only, for thirty-one days. From the thirty-second to the forty-second day he subsisted on a few mangoes, peaches, or grapes. He then began to get a return of appetite, and started two meals a day, taking smaller quantities of food than he had been accustomed to take before. He had put on 9 lb. since he had recommenced eating, but thought he was now not increasing any further in weight. While he had reduced the number of cigarettes he had been accustomed to, he had not given up smoking throughout his treatment. He thought his mental processes had been improved. He had taken vigorous walking exercise throughout, and while before he could not by stooping reach to closer than 11 in. from the ground with his finger-tips, he could now touch his toes. The treatment was supplemented by aperients and enemata in the earlier stages. He stated that he felt fitter than for years, and while before the slightest chill brought on an attack of fever, now he could indulge in very cold baths, and feel the better for them. Major Austin emphasized the difference between true and false hunger. The former had no morbid feelings, as a sinking sensation, or headache, or faintness, which were really the results of indigestion or autointoxication from undigested and fermenting material in the stomach. Such sensations could be abolished equally as well by a dose of magnesium sulphate as by taking more food. He insisted that most people suffered from undue frequency of feeding. Prolonged periods of rest for the stomach were necessary, and he advocated two meals a day, breakfast being taken at the luncheon hour. Leanness might be the result of starving from overfeeding, for it was not the amount eaten, but the amount digested which mattered. Some thin people were small eaters, but he considered that lack of appetite was tantamount to ill health, and what they required was not more food, but more rest from food. Stoutness again was eating and digesting more than the body could utilize.

Lieutenant-Colonel BRAIDE, I.M.S., thought that the range for such treatment would be very limited and applicable only to men of exceptional will and staying power.

In answer to Lieutenant-Colonel AUSTEN-SMITH, I.M.S., as to the apparently successful feeding-up methods employed in most sanatoriums for tuberculous patients, Major AUSTIN expressed the opinion that the method he had described would give better results.

In answer to a question by Major BLACKHAM, R.A.M.C., he thought that the reason why some persons collapsed quickly under starvation was because they abstained from liquids as well as solids and that, as they were not purged, they suffered from autointoxication.

Chloroform Anaesthesia.

Sir JAMES ROBERTS, I.M.S., in a note on the administration of chloroform, amplified Hewitt's dictum that the dangers of chloroform administration were mainly above the larynx, and advocated the use of the finger in preference to the instruments, in freeing the epiglottis in cases where the patient stops breathing under chloroform. He strongly advocated the use of Vernon Harcourt's inhaler.

Lieutenant-Colonel JAMES, I.M.S., whilst agreeing with Sir James's remarks in the main, considered that the reason why so little was heard of chloroform poisoning in India was the general use of the open method. The usual mistake made was in choking the patient by too much chloroform at the start. Major BLACKHAM, R.A.M.C., advocated Schäfer's in preference to Sylvester's method when the patient stopped breathing under chloroform.

Cases.

Lieutenant-Colonel JAMES, I.M.S., showed an interesting case for Lieutenant-Colonel Austen-Smith, I.M.S., of a young man, Mr. S., aged 26 years, who had had tuberculous bursitis over both great trochanters. The bursae had been excised, and slides from them were shown under microscopes. The patient had enjoyed good health for some time, but had now returned as he had noticed three subcutaneous nodules in the small of his back. The nature of these was doubtful.

Colonel JAMES also showed a case of excision of the knee-joint in an Indian. He advocating wiring, as enabling this class of patient to get home quickly; also it obviated much pain in the convalescent stage.

Papers by Colonel Hendley, I.M.S., and Lieutenant-Colonel Austen-Smith, I.M.S., were unavoidably held over owing to the lateness of the hour.

Reports of Societies.

BRITISH OTO-LARYNGOLOGICAL SOCIETY.

AT a meeting on July 16th, Dr. FREDERICK SPICER in the chair, the following were among the exhibits: Dr. PERCY JAKINS: (1) A man, aged 24, with a plum-coloured growth on the left vocal cord. The CHAIRMAN suggested the desirability of removing a portion and examining it microscopically before making a diagnosis. (2) A woman, aged 35, with perforation of the nasal septum and extensive specific ulceration of the tonsils and fauces healing rapidly under treatment by salvarsan. Mr. CHARLES HEATH suggested that the slighter existence of repair in the septum was perhaps due to its non-vascular structure. Dr. MCCULLOCH: Four cases of labyrinthine deafness showing improvement by treatment with the ultra *x* rays. Dr. WALKER WOOD said that he had examined and tested these cases before treatment and again three months later. There was an undoubted improvement, and, although it was but slight, it was encouraging. Mr. CHARLES HEATH: (1) A case of aural suppuration of forty years' duration in one ear and thirty-eight in the other, with an interval of two years between the operations. There had been complete recovery with excellent hearing on each side after conservative mastoid operations by the method devised by the exhibitor of the case. (2) A case of chronic aural suppuration of two years' duration with cholesteatoma in both ears (specimen shown), with perfect restoration of structure and function in each ear after conservative mastoid operation by the exhibitor's method. The CHAIRMAN thought Case I evidenced the most satisfactory results of mastoid operations he had ever seen. With regard to Case II the result of operation showed how much advance there had recently been in the treatment of chronic aural suppuration; not long ago a patient such as this would have undergone the radical operation, and would have been made deaf by it. Dr. PULLIN drew attention to the cosmetic effects of these two cases of double mastoid operations. Mr. HEATH, in reply, said, with regard to the case of forty years' duration, she was referred to him by Dr. Meggison, who did not anticipate that hearing could be restored, but in the hope that arrest of aural suppuration by mastoid operation might put an end to the severe headaches which had marred the whole life of the patient. But in this event hearing had been restored to $\frac{28}{28}$ths and $\frac{14}{28}$ths, which was really useful hearing; the headaches, too, had abated. With regard to the double cholesteatoma case, prior to the introduction of the conservative mastoid operation in 1906 he would have performed radical operations, and this patient would now be more or less deaf, whereas at present her hearing was more acute than the average girl of her age. A paper by Dr. JAMES HARPER (Glasgow) on a new after-treatment of intra-nasal operations was also read.

THE late Dr. Roderick Maclaren of Carlisle left estate valued at £15,031.

Reviews.

CLINICAL RADIOLOGY.

THE study of radiology, as applied to the elucidation of problems in medical diagnosis, has not hitherto received the same meed of attention as its more obvious application in the domain of surgery. With improved apparatus the power of observing the normal and abnormal shadows cast by thoracic and abdominal organs has been greatly increased, and the use of oblique as well as of frontal and lateral observations has opened up fresh lines of investigation which will doubtless lead to valuable practical results as the study becomes more generally pursued.

An interesting work[1] has recently been published in France, in which the careful investigations of Drs. VAQUEZ and BORDET are recorded, showing the various methods by which they have been enabled to use radiology successfully in the diagnosis of affections of the heart and great vessels.

Only by analytical examination of skiagrams, both in the healthy and in a full series of morbid cases, can any definite certainty be arrived at with respect to the exact significance of the shadows obtained. Just as the tracings obtained in sphygmography and cardiography have undergone analysis by means of experiment, so may the indications of the radiograph be mapped out for practical use in diagnosis. The writers of the work in question have made great use of oblique examination of the thoracic organs in definite directions, as expressed by fixed angles. This method was employed some years ago, but the uncertainty attending its indications at that time would appear to have outweighed any attempt at definition. Greater precision and uniformity has now been achieved by the use of teleradiographic and orthodiagraphic systems. By using a very powerful current and tube the patient can be examined at a distance of 2½ metres from the source of the rays, with the result that there is far less distortion, and the shadows of the organs appear to be but slightly, if at all, larger than if they were cast by parallel instead of divergent rays. This effect can be further developed by the use of a diaphragm, and the organ or part which it is desired to examine can thus be brought into the very centre of the circle of illumination. The value of this method is particularly shown in taking observations obliquely, and the clear space visible between the heart and the spinal column is then found to be occupied by well-defined shadows cast by the left auricular appendix, the ventricle, and the apex of the heart respectively. Careful study of these shadows and their variations within the limits of health is needful before the morbid variations can be properly interpreted, but the writers claim to have arrived at a degree of precision by which they have been enabled to form a correct diagnosis of cardiac disease without seeing the patient, being guided solely by their interpretation of the skiagraphic picture. But though they make this claim, they emphasize the need for systematic examination of the chest in various directions, and extol the use of the screen. The photographic plate, as they express it, is at best a dead record, whereas the screen, if properly used, will enable abnormalities of action to be discovered as easily as abnormalities of shape.

In regular order the writers pass in review the well-known forms of heart disease, describing and discussing the shadow changes that they have been found to produce. A relatively small number of skiagrams are reproduced, the graphic method of outline diagrams being preferred. These, while they make the teacher's meaning clear, are not by any means so convincing to the reader of the volume as the actual shadows themselves would have been.

Various morbid conditions which have been noted as the result of disease elsewhere in the body—as, for instance, the enlargement in renal disease or the excessive action in exophthalmic goitre—are also studied. Pericardial and mediastinal affections and finally aneurysm, come in for their full share of notice, and complete a very interesting, practical work which should fill up a gap in the modern clinical library.

[1] *Le coeur et l'aorte: Etudes de radiologie clinique.* Par MM. H. Vaquez et E. Bordet, à la Faculté de Médecine de Paris. Paris: J. B. Baillière et Fils. 1913. (Roy. 8vo, pp. 250; 169 figures. Fr.15.)

CEREBRO-SPINAL MENINGITIS.

SEVERE epidemics of cerebro-spinal meningitis have occurred in various parts of the United States of America during the last few years; New York City counted 1,026 cases of the disease in 1906, and in the Texas epidemic of 1912 the State Health Officer collected 2,575 cases, to mention only a couple of instances. Dr. SOPHIAN[2] has had the opportunity of studying the Texas epidemic on the spot, and in both the laboratory and the hospital, and he has written an admirable account of the symptomatology and epidemiology of the disease as it was then met with. He concludes that it occurs sporadically as well as in epidemics, and that the most important predisposing factor is probably unusual climatic change, to which people are unaccustomed and are non-resistant, and which occasions general naso-pharyngeal catarrh. The immediate exciting factor is, of course, the meningococcus, one of a group of Gram-negative cocci that can all (except perhaps the gonococcus) be found in the nose and throat; usually the meningococcus can be differentiated easily from the rest by the ordinary morphological and cultural characteristics together with fermentation reactions. It enters the body—the blood stream—from the nose and throat. The infection is transmitted chiefly by healthy persons who carry the cocci in the naso-pharynx for months and years; only a small percentage of these carriers contract the disease themselves. The incubation period seems to be very variable, from one to thirty-six days according to some observers; Dr. Sophian believes that it lies between one and five days. His second chapter extends to fifty pages and gives a very clear account of the symptomatology of epidemic cerebro-spinal meningitis and its clinical diagnosis; then follow thirty pages on its laboratory diagnosis.

The last 100 pages are devoted to an account of the treatment and prophylaxis that have been found most successful. Isolation is the most important step in the control of an epidemic; all carriers of the meningococcus, identified by cultures from throat-swabs, should be quarantined so long as they continue to carry the microbe. No arbitrary time limit for the quarantine (ten days to several weeks, for example) is practically useful. Gargles and sprays to the throat and nose, with prophylactic doses of 20 to 30 grains of urotropin a day, are recommended; this antiseptic drug is excreted by the nasal and naso-pharyngeal mucosae and is also found in the cerebro-spinal fluid. Dr. Sophian believes that protective vaccination with killed meningococci, with which he is now experimenting, has a future before it. The disease itself is to be treated by lumbar puncture and the intra-meningeal injection of highly potent multivalent anti-meningococcic (antimeningitis) serum; the dose in which it is administered is to be regulated by observing the patient's blood pressure, and averages 20 to 25 c.cm. in adults. Details of the method of administering the serum are given by Dr. Sophian very fully and are too long to be enumerated here; an average case receives three or four such injections.

Dr. Sophian's book may be cordially recommended to the attention of all medical men who have to deal with cerebro-spinal meningitis. It is written with the authority of a practical man who has had a wide experience of the disease in its epidemic form and of its treatment, and is thoroughly up to date. The volume is typically American in get-up and appearance, contains many misprints, and is well indexed.

TREPHINING FOR GLAUCOMA.

"THE present time may be spoken of in ophthalmological history as the glaucoma age. The magnificent work of past decades associated with the honoured names of Priestley Smith, Lagrange, de Wecker, and many other workers has suddenly reached fruition. The underlying principle is to be expressed in one word 'sclerectomy.'" With these words Colonel ELLIOT introduces his book upon *Sclero-corneal Trephining*,[3] an operation which, introduced by Argyll Robertson and Freeland Fergus,

[2] *Epidemic Cerebro-Spinal Meningitis.* By A. Sophian, M.D. London: H. Kimpton; Glasgow: A. Stenhouse. 1913. (Med. 8vo. pp. 287; 23 illustrations. 12s. 6d. net.)

[3] *Sclero-Corneal Trephining in the Operative Treatment of Glaucoma.* By R. H. Elliot, Lieutenant-Colonel, I.M.S., M.D., B.S.Lond., Sc.D. Edin., L.R.C.S.Eng. London: Pulman and Sons. 1913. (Demy 8vo, pp. 135; 33 figures. 7s. 6d. net.)

he has elaborated and developed until it is now almost universally called the "Elliot operation." The author further expresses the opinion that the day of iridectomy for glaucoma, von Graefe's operation, is over; its sun has set after nearly fifty years of undisputed supremacy. We agree with Colonel Elliot in so far that we consider that any large incision such as is necessary for a glaucoma iridectomy, and equally for Lagrange's sclerectomy operation, is dangerous, and now that other safer methods have been shown to be equally, if not more, efficient, should be definitely abandoned. It has long been felt that iridectomy in chronic glaucoma was hazardous and often quite ineffective, and all ophthalmologists welcomed the newer and safer methods which, originally starting with de Wecker's classical but generally useless sclerotomy, were modified and amplified by Lagrange, by Herbert, by Freeland Fergus, and finally by Elliot and Holth.

We are fully prepared to agree with Elliot that it is essential to tap the anterior chamber, to excise a piece of sclera, and to keep well away from the region of the ciliary body. This involves the rejection as ephemeral in action of all sclerotomies and demands sclerectomy. An operation which entails a large section is objectionable, and for these two reasons Herbert's methods and Lagrange's would not be operations of election. It does not necessarily follow from this that trephining is the best method of effecting sclerectomy in all cases, for in many Holth's punch might be as efficient as the trephine; but Elliot's contention that corneo-sclerectomy must be employed should be accepted, and we believe that alone, or better combined with a small iridectomy, it will before long be the procedure universally adopted for chronic glaucoma and generally for acute glaucoma. The operation is safe and its effect is permanent and certain. One school of ophthalmic surgeons believes in iridectomy, another school in sclerectomy. It is always possible, and may be wise, to combine the two. Thomson Henderson has definitely proved that the iris cut in ridectomy never heals, and he urges, but cannot prove, that the raw surface enables the iris to act as a sort of wick and drain off the excess of fluid in the eye.

The book before us contains a detailed account of Colonel Elliot's operation, its indications, its complications, dangers, and results. The technique is detailed in the clearest manner, and its pitfalls exposed.

There is also an article on the trephine in the treatment of glaucoma by Sydney Stephenson, and an able review of the whole subject by Arthur J. Ballantyne. Another chapter upon the site of trephining is written by E. Temple Smith.

We have only two criticisms to offer to this extremely able book. We wish that Colonel Elliot, in describing the various trephines which have been used, had not omitted the one which we have found to cut best, the Freeland Fergus instrument. Colonel Elliot's test for filtration is to press a probe into the conjunctiva in the neighbourhood of the scar; pitting, he says, indicates filtration. We find, however, that pitting can be obtained in the neighbourhood of any perfectly healed incision into the globe, and also in many eyes which have not been touched at all, especially those of the aged. We believe that the only test of a filtering cicatrix is a definite bleb which can be increased by pressure upon the eye.

The book affords evidence of the exceedingly thorough way in which the Eye Hospital at Madras is managed, and to the perfection of the operative technique followed there. The careful taking and scheduling of the notes could not be excelled. The volume is an exceedingly valuable addition to ophthalmic literature.

THE AMERICAN GYNECOLOGICAL SOCIETY.

THE first article in the *Transactions of the American Gynecological Society*[4] is the address of the President, Professor Howard Kelly, on the history of vesico-vaginal fistula. Dr. Kelly dwells on the treatment of this type of fistula down to the days of Marion Sims, Bozeman, and Emmet, according well-merited credit to his distinguished countrymen. "Sims and Emmet developed an insight and an accuracy born of the experience of many failures finally converted into successes. I am convinced that these older operators succeeded with a regularity and in a class of cases which no operator of to-day can hope to imitate if limited to the same means." The long-forgotten criticisms of the opponents of these great innovators are quoted, and Dr. Kelly promises a future review of contemporary practice in the same field. The *Transactions* include several communications relating to cancer of the uterus and radical operations for its extirpation; some of the papers relate to work, already widely known, done at the great Baltimore School of Medicine. Dr. Craig Neel reminds us that since 1900 the abdominal route has been employed in practically all the operative cases in the Johns Hopkins Hospital. The discussion on the radical operation for cancer of the cervix occupies over twenty pages. Dr. Cullen insists that an extensive operation for the removal of cancer of the cervix by Wertheim's method is the most difficult operative procedure in the realm of abdominal surgery. He adds significantly that those who claim such good results by means of the thorough use of the cautery should continue to use that instrument, whilst those who feel that Wertheim's operation offers the best chance will continue to perform it. He believes that a comparison at the society each year of the results would "soon determine absolutely which is the better procedure," a surprisingly confident assertion for so able and experienced a surgeon to make. Dr. Cullen advocates the wholesale education of the masses without creating alarm. The volume also contains some papers of much weight on eclampsia and the toxaemia of pregnancy, and, as usual, several communications relating to prolapse and its treatment. On the other hand, there is but one article on fibromyomata, till recently so prominent a subject in the annual archives of societies, and that communication, fairly scientific and also of much clinical worth, treats of the influence of myomata on the blood supply of the uterus, with special reference to abnormal uterine bleeding, based on the study of 150 injected uteri containing these tumours, by Dr. Sampson of Albany. There is yet much to be learnt about the genesis and the significance of uterine fibroid disease, and the distinction between different forms of metrorrhagia. Dr. R. Schröder's *Atlas* demonstrating the normal menstrual cycle of the endometrium, recently reviewed in the JOURNAL, showed that changes in the epithelium of the uterine mucosa go on steadily through each cycle, yet the meaning of these changes is not clear. Dr. Sampson has taken the endometrium into account in relation to fibromyoma, and his researches point in the right direction; but the normal endometrium demands yet more study under the direction of histologists and physiologists.

[4] *Transactions of the American Gynecological Society.* Vol. 37, for the year 1912. Philadelphia: W. L. Dornan. 1912. (Demy 8vo, pp. 509.)

NOTES ON BOOKS.

IN writing an elementary textbook on the subject of *Medical Electricity and Light*,[5] Miss ETTIE SAYER has made it her special object to instruct the nurse, not in order that the nurse may assume supervision of the treatment, but that she may assist the doctor more intelligently, and therefore more efficiently, in general electro-therapeutic administration. The author herself well says that the introduction of such a force as electricity into the human body "ought to be attended with as much care and consideration as if it were a surgeon's knife." When one remembers that in electrical treatment the patient is conscious—indeed, is often excited and apprehensive—the nurse who has a sure capacity and a command of soothing suggestion will be found to be as valuable an acquisition as anything in the armamentarium. We believe that this little book will multiply her number.

The fifth edition of *Birch's Management of Children in India*[6] has been prepared with great care by Drs. GREEN and GREEN-ARMYTAGE. Every chapter has undergone thorough revision. There are many elisions and numerous additions. Among the latter the most important are: More detailed information respecting general hygiene and the prevention of disease (including recent bacteriological

[5] *Medical Electricity and Light.* An elementary textbook for nurses. By Ettie Sayer, M.B., B.S.Lond. London: The Scientific Press, Limited. 1913. (Foolscap 8vo, pp. 136; 44 illustrations. 3s. 6d. net.)

[6] *Birch's Management and Medical Treatment of Children in India.* By C. R. M. Green, M.D., Lieutenant-Colonel, I.M.S., and N. B. Green-Armytage, M.D., Captain, I.M.S. Fifth edition. Calcutta: Thacker Spink and Co. 1913. (Demy 8vo, illustrated. Rs. 7-8).

researches); an expansion of the chapter on artificial feeding (no fewer than thirty-seven infant foods being described); and a recasting of the sections relating to fevers. The chapters on simple continued, ardent and remittent fevers are omitted, and descriptions of seven-day (sandfly) fever, kala-azar, and undulant fever introduced. The subject of bowel complaints has also undergone radical alteration. The identification of poisonous snakes has been rendered easier by descriptions and diagrams. The book has been brought up to date, and for purposes of reference and guidance has undoubtedly been made more instructive and useful. The work as now published presents a striking contrast to the modest *Hints for the General Management of Children in India in the Absence of Professional Advice* prepared and published by Surgeon Henry Hurry Goodeve of the Bengal Medical Service in 1844, of which this is the tenth successor. The tendency has been, in editing new editions, towards elaboration and scientific development. It is now more a practitioner's than a mother's book—too scientific for the latter, and perhaps not scientific enough for the former. Still the work has established for itself great popularity in India, and this is, perhaps, the best test of its success and utility. We notice that a subject of great concern to mothers and nurses has been omitted, namely, the toilet of the prepuce, and an account of the symptoms of stone in the bladder and urethra might have been advantageously introduced.

Dr. D. B. LEES has printed in a small volume the Bradshaw Lecture on Tuberculosis delivered before the Royal College of Physicians of London on November 5th, 1912, and has added an address on the treatment of pulmonary tuberculosis delivered before the Cambridge Medical Society last May.[7] An abstract of the Bradshaw Lecture was published in the JOURNAL on November 9th, 1912, p. 1269. The main contentions are stated by Dr. Lees in a preface to this volume, as follows:

1. That the existence of an incipient pulmonary tuberculosis can be easily demonstrated by careful percussion (provided that during examination of the front of the chest the patient is in the recumbent position with relaxed muscles) long before any bacteriological evidence is obtainable, and while the auscultatory evidence is still insufficient for a diagnosis.
2. That a negative bacteriological report is often fatally deceptive, and that to wait for the demonstration of bacilli in the sputum is like postponing the diagnosis of cancer until the glands are involved.
3. That in the earliest stage of a pulmonary tuberculosis it is always possible, and in a somewhat later stage usually possible, to obtain prompt and permanent arrest of the disease by the employment of the method of continuous antiseptic inhalation.

In support of this statement Dr. Lees has added to the lecture particulars of 70 cases.

Dr. PEEL RITCHIE has done very well to translate, in a volume entitled *Orthopaedics in Medical Practice*,[8] the book published by Professor LORENZ and his assistant, Dr. SAXL. As was pointed out in the review of the German edition published on February 10th, 1912, the book is written from a rather unusual point of view. It is addressed to the general physician and general practitioner, and has two purposes, first to indicate the signs and symptoms which should put the practitioner on his guard, and secondly to give a sketch of the methods of treatment now generally used by surgeons who devote themselves specially to orthopaedics.

[7] *The Bradshaw Lecture on the Diagnosis and Treatment of Incipient Pulmonary Tuberculosis.* By D. B. Lees, M.D.Cantab., F.R.C.P.Lond. London: H. K. Lewis. 1913. (Demy 8vo, pp. 124. 5s net.)

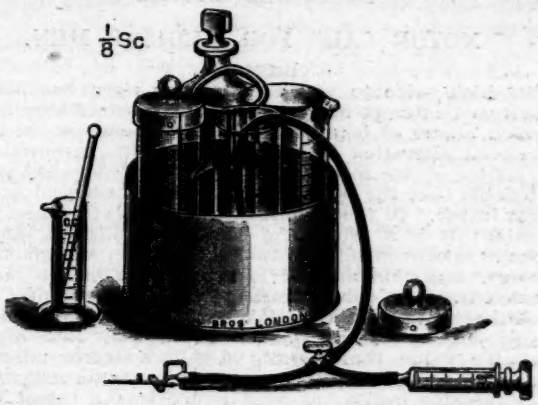
[8] *Orthopaedics in Medical Practice.* By Professor Adolph Lorenz and Dr. Alfred Saxl. Authorized translation from the German by L. C. Peel Ritchie, Ch.M., M.D., F.R.C.S.Edin. London: John Bale, Sons, and Danielsson, Ltd. 1913. (Med. 8vo, pp. 288; 39 illustrations. 7s. 6d. net.)

THE Roman Anthropological Society has decided to form an Italian Committee for the study of eugenics. Its organization has been entrusted to a special committee of which Professor Giuseppe Sergi is President. The Committee will study the factors which may determine the progress or decadence of races considered from both the physical and the psychical aspects. To elucidate this, researches will be made on the normal or pathological inheritance of characteristics, on the influence of the environment, on the mode of life of parents and the character of the offspring, on the importance of momentary conditions of the organism at the time of reproduction, and on the influence of mode of life and environment in which the new organism develops.

MEDICAL AND SURGICAL APPLIANCES.

An Outfit for the Intravenous Injection of Salvarsan.

MR. ALFRED ALLPORT (London) writes: In giving intravenous injections of salvarsan or neo-salvarsan it is simple to get the glassware aseptic, but it is not easy to make certain of having it also spotlessly clean and free from any foreign substances which might float off into the solution. If the glass is boiled in tap water a fine sand is apt to be deposited on it. This has to be wiped off with a sterilized towel, and the towel will generally leave minute pieces of cotton adhering to the glass which can be seen floating in the solution if held up to a good light. These minute particles may be of small importance, but it gives a more comfortable feeling to the operator if he feels that he is not injecting anything extraneous to the solution into a patient's veins. Messrs. Down Bros. have made for me a convenient portable outfit for intravenous injection. It consists of an ordinary round sterilizing drum, into which is fitted a metal tank about 4 in. deep. Into a rack somewhat like a cruet-stand with a handle fits a 20-oz. graduated measure for mixing the solution, and a glass rod, and a small 50 c.cm. measure for the sodium hydrate solution (if neo-salvarsan be used these two measures are not needed); two 300 c.cm. graduated glass vessels (Ehrlich), one for the saline solution or distilled water, and one for the salvarsan or neo-salvarsan solution; a 30-oz. stoppered bottle for the saline solution or distilled water, and two clips for the glass syringe. After an injection has been given, the Ehrlich glass which contained the salvarsan solution is thoroughly well rinsed three or four times by vigorous shaking with the saline



or distilled water which has been left over from the operation, the covers are put on both glasses and they are replaced in the rack with the other ware, the rack fitted into the drum, and the whole outfit sterilized in the sterilizer. There is room on the top of the vessel for a couple of towels and some dressings.

There are objections to a metal tap, which becomes corroded after use, and Messrs. Down Brothers have provided a glass two-way tap, which I consider to be preferable. It is clean, and what is going on inside it can be seen—the backward flow of the blood when the vein is first entered, or a bubble of air if one happens to get through. The plunger of the tap should be smeared with a little glycerine, and an elastic band placed over one of the arms and carried over the top to prevent the plunger from rising up and becoming loose. I have used this glass tap for a year, and it is quite easy to manage. Messrs. Down Bros. have made an injection needle for me which is a slight modification of McDonagh's needle. It has a more convenient handle and a plain flat plate by which it can be secured to the limb with a small strip of adhesive strapping, if it is desired to do so. I prefer to sterilize the needles in alcohol, and the metal box which contains them can be filled with alcohol while the other things are being prepared.

The rubber tubing should be boiled, and afterwards well syringed through with saline before use. If salvarsan is being used the temperature can be accurately maintained at from 94° to 97° F. by partially filling the tank which holds the glasses with hot water. In giving the injections the two Ehrlich vessels stand side by side in the tray, one containing a few ounces of saline and the other the salvarsan solution. A little metal retainer clips the rubber tubing and hitches over the edge of the glasses.

The whole apparatus in its sterilizer drum fits into a canvas waterproof cover with a leather handle for

carrying, and is very compact and portable. It will rest firmly on the patient's bed, and, with the clip to hold the tubing, no assistance is required in giving the injection.

A New Screw and Screw-driver for use in the Operative Treatment of Fractures.

Dr. J. ST. ANDREW TITMAS (London) writes: The driver has projecting from its end four prongs, which fit into corresponding notches at the margins of the head of the screw. A very secure "bite" is thus obtained, the driver having no tendency to slip off the head of the screw, as so often happens with the ordinary form of driver and screw in common use. It is also more easy to drive the screw straight home, there being no tendency to deviation. The driver is magnetized, so that the screw can be carried

to the bone on its end, and placed in position without any screw-holder. Nothing, therefore, should touch the screw after it has once been put in place on the end of the driver. The screw can be driven in flush with a Lane plate, as the end of the driver is the exact size of the head of the screw. The advantages over the ordinary driver and screw are the much more secure bite and the portability gained by magnetization. The instruments are made by Messrs. Allen and Hanburys, Limited, of 48, Wigmore Street, London, W.

MOTOR CARS FOR MEDICAL MEN.

BENZOL.

THE high price to which petrol has risen has led to increased interest being taken in the substitutes for it which admit of being used in motor engines without material alteration in the engine or its carburettor—a matter of the more consequence as it does not seem probable that the price of petrol will be reduced in the near future. Of these substitutes benzol is the most promising; it is a product of coal-tar distillation, and is formed in converting coal into coke in gas manufacture, though a certain amount is usually left in the gas to enrich it. It is a hydrocarbon with the formula C_6H_6, petrol being in the main pentane which has the formula C_5H_{12}; hence, bulk for bulk, it has a somewhat higher calorific value than petrol, so that a better mileage, amounting to nearly 20 per cent., can be obtained with it.

A valuable leaflet has been issued by the Petrol Substitute Joint Committee giving instructions for its use. A trial run is recommended without alteration of the carburettor, but if it is found that the engine becomes overheated, or that the exhaust gases are excessively hot, the size of the jet must be reduced; the same thing is needed if the plugs, or the valve caps, soot up more than usual. The advice has usually been given to increase the air supply, but the Committee finds that better results are got by reducing the benzol supply. The writer of this note has found that the easiest way of reducing a jet for experimental purposes is to pass through it wires of varying thickness, and when the right one has been found it is not at all necessary to get a new jet, for the wire can be left in; the writer's car has been running for two or three years with a jet so treated.

Pure benzol cannot be obtained at a reasonable price, but the samples vary, and many commercial benzols are pure enough. The impurities which matter most are coumarine, a dark, sticky substance which gums up the valves and valve stems, and sulphur. The presence of coumarine in harmful amount is indicated by a yellow colour of the spirit, although some yellow samples of benzol do not contain enough to matter. If the use of benzol becomes at all general there will be no real difficulty in getting rid of this impurity. A material amount of sulphur, up to even 250 or 300 grains per gallon, does not seem, so far as present experiments have gone, to be of any importance. One peculiarity of benzol, as compared with petrol, is that too early ignition does not cause that knocking noise which is a valuable warning against exposing the mechanism to this undue strain. This would seem to point to the explosion being rather less sudden, though we are not aware whether this has been experimentally determined. As the specific gravity is higher than that of petrol (0.899 as against 0.670 to 0.700), it may be in some cases necessary to weight the float slightly, and as its boiling point is higher (80° C. as against 50° C. to 60° C.), warming of the carburettor or of the inlet pipe is rather more important than it is with petrol, though most modern carburettors already have provision for this. A warning is given that its solvent powers are greater, so that care must be taken not to spill it on paint work; and, indeed, sometimes when it is first used in a car it can pick up paint from the tank or elsewhere and block the jet, but this difficulty soon passes away. Benzol can be obtained from most gasworks, and the Automobile Co-operative Association—now styled the Automobile Consolidated Alliance—has already arranged for a supply to its members.

THE MOTOR CAR PROBLEM.

DR. EDWARD PHILLIPS (Coventry) sends us the following notes:

Expense and first outlay, of course, have to be seriously considered, but the statement often made of a car being able to do forty or fifty miles to the gallon of petrol is misleading, and should influence no man in buying a car. Running along a straight road on the high speed with a minimum of petrol and an abundance of air (air is cheaper than petrol), a car may do forty miles to the gallon, but with stopping, turning, and gear changing, such a car's consumption will be a surprise to the novice. Efficacy and freedom from complications are of more importance than the consumption of a few ounces of petrol.

Excessive speed, too, is not to be considered. Slow speed in traffic and ability to pick up at once when required will appeal to the doctor more than forty-five miles on the level. Hill climbing at a good speed is so essential, and a low-powered car will only creep up inclines, much to the chagrin of the man driving. Hence nothing short of a four-cylinder engine will be required, developing some 10 or 12 h.p., mounted on a fairly long wheel base and a body not too cumbrous.

The English car maker has certainly not catered for the doctor, possibly because he did not understand what was required. Neither has he for the colonies, for it is estimated by a writer from Victoria, B.C., that "there are some 3,000 American cars in that city to 10 English, because the English makers will persist in making cars which do not suit their roads." I take from this that they are too heavy and badly sprung for rough roads. The springing of the American cars has developed into a fine art, and might with advantage be imitated. (Perhaps it is a pity that the body work and other details have not developed in the same way.) The low price is probably why many English doctors have set up cars from the other side of the Atlantic.

More attention has to be paid to silencing; a noisy car puffing and blowing outside a patient's house is an abomination, quite as annoying to the invalid as barking dogs, squalling children, and street organs. Many cars are quiet on the high speed—covered-in valves has had a good deal to do with this—but the gears on the low are often perfect rattletraps. A man buying a car should bear this in mind, and at the trial ask for the car to be put into reverse. For some cars the noise in this manœuvre will astonish him, and he will be well advised to change his mind if this particular type has taken his fancy. The doctor who drives himself, keeping a man for cleaning the car, will become more numerous, and it is for this class that these remarks are written. The man who for medical practice keeps his chauffeur and has a huge car can sit inside reading his daily paper and content himself that his expenses are reaching the maximum limit.

The BRITISH MEDICAL JOURNAL in the early days of motoring did me the honour of publishing articles from my pen, in which I advocated the price of a car for a doctor as being £150. This statement was taken up by several papers as being a jest or made without chapter and verse. I often wonder how many doctors have American cars to-day for which £150 to £160 has been paid.

In the last few years vast improvements have taken place, refinements and more particular work have been put into the car. For this the purchaser must pay. The doctor now should not make a greater outlay for a car fully equipped for the road than £200. There are a few English cars which fall in with the above requirements at the figure named. If light on tyres and economical in petrol, as it ought to be, his running expenses should not be extravagant.

QUESTIONS.

M. S. desires to obtain the receipt for a good liquid brass polish for cleaning such work on a motor car.

E. asks what are the best glasses or goggles for motoring to relieve the eyes from strain, glare, and wind; what coloured glasses are recommended for the above purposes; and should they be flat, or what shape?

OVERTYRED asks for experience on the following points: (1) Cost of upkeep and running of light cars, say two-seaters, home or American. (2) What depreciation should amount to, the car doing from fifty to sixty miles a week in well-paved streets. (3) Have the American cars special claims in the matter of accessibility of parts, and are there extra facilities given by the agents in the allowance for the old car when getting a new one?

Australian Institute of Tropical Medicine, Townsville.

THE AUSTRALIAN INSTITUTE OF TROPICAL MEDICINE.

As was briefly mentioned in the JOURNAL of July 5th, Sir WILLIAM MCGREGOR, G.C.M.G., Governor of Queensland, on June 28th formally opened the recently erected buildings of the Australian Institute of Tropical Medicine at Townsville.

The institute has been in existence since the beginning of 1910, but it was housed in a small and entirely inadequate building. The energy and activity, however, of the Director, Dr. Breinl, were not long in convincing the Government that a much more extensive establishment was necessary. Accordingly in 1912 steps were taken towards the erection of a commodious new building, and at the same time it was decided to make a large increase in the staff.

The New Institute.

The new institute, which stands in the grounds of the Townsville Hospital, adjoining the hospital itself, is a large two-storied structure of ferro-concrete, built on a solid concrete foundation. Around each floor runs a wide, shaded verandah, which renders the interior of the building comparatively cool even on the hottest days. The building itself is a plain rectangle without any attempt at ornamentation. The main entrance, which opens from the hospital drive, leads into a wide corridor. At the far end of this is the large students' laboratory and lecture room, which is fitted with four long benches and all the necessary requisites for teaching and demonstrating. The room is well lit from three sides and will accommodate about a dozen students. Adjoining the lecture room is the museum, which, though providing ample space at present, will probably soon be found too small. Already about half the available space is occupied. Opposite the museum is a spare research room. Next to the latter is a small incubator room, and adjoining this a photographic dark-room. At the entrance the room of the head attendant and the chief assistant face each other.

On the upper floor above the lecture room is a large library and reading room. At present it is stocked chiefly by books belonging to the members of the staff, and there is urgent need for more literature. Adjoining the library on either side are the chemical and bacteriological laboratories. There is also an entomologist's room, an office and the Director's room. The research rooms are all furnished. In the centre of each room is a large square table, while along the walls are the usual laboratory benches. A cabinet and bookcase complete the furnishings.

At the rear of the institute, and separate from it, is a fairly large animal house. Beyond that again is a compact *post-mortem* room, while a third annexe does duty as a sterilizing and media room. The fittings of each of these buildings are highly modern, though from lack of funds they are not by any means as complete as could be desired.

Opening Ceremony.

At the opening ceremony, which took place in the afternoon, and which was largely attended, both by local people and by medical men from all over Queensland, Professor ANDERSON STUART of Sydney, representing the committee of the institute, presented the Governor with a suitably worded illuminated address, in which was expressed an appreciation of the services which the Governor himself had rendered towards the study of tropical medicine. The GOVERNOR in a short speech congratulated the committee on the excellent staff it had been fortunate enough to secure, and in particular on their choice of Dr. Breinl as Director; his long and varied experience of tropical disease well fitted him to guide the destinies of the young institute, and his work in Australia had already shown excellent promise. The other members of the staff were all men of tried experience each with some particular speciality which rendered their service to the institute invaluable. Dr. Nicoll, formerly Ernest Hart Memorial Scholar in State Medicine of the British Medical Association and Lecturer in Helminthology at the Imperial College, London, was a parasitologist of wide repute. His work at the Lister Institute of Preventive Medicine in London had eminently equipped him for tackling several of the most pressing problems to be faced in North Queensland. Dr. Priestly was an expert bacteriologist and had demonstrated his ability during his two years' tenure of the Beit Memorial Fellowship at the Lister Institute. A graduate of Sydney University, he had early shown a liking for research work, and had particularly interested himself in protozoa. Dr. Young, who had also come out from the Lister Institute, had specialized in the chemistry of fermentation and the digestive processes—work which amply qualified him to deal with the intricate problems of metabolism which would bulk so largely in the work of the Institute. Mr. Taylor, who had already been at the institute for two years, was an entomologist and general zoologist of unusually great promise. By his work on mosquitos and other biting and blood-sucking insects he had shown that he was possessed, not only of remarkable energy, but also of very great ability. His Excellency referred in fitting terms to the very great services which had been rendered in bringing the institute into existence by Dr. Frodsham, until recently Bishop of North Queensland, and by Professor Anderson Stuart, of Sydney. The institute owed its conception and birth to these two gentlemen. He congratulated the committee on the completion of the new laboratories and sketched the aims and objects of the new institute and its importance in the opening up and colonization of tropical Australia. With a thorough grasp of his subject, Sir William briefly detailed the various problems with which the institute would have to grapple, and referred to the lines of research which had already been taken up by members of the staff. He emphasized the importance of ascertaining the effects of tropical conditions on white people, and in particular under such conditions as obtain in Australia, where all manual labour even of the heaviest description has to be performed by white men and women. The question was of the most far-reaching political importance, and round it would centre the future destiny of tropical Australia, and indeed of the whole Continent, for, as Professor Stuart had said, there was little doubt that if the northern part cannot be effectively held by Australians, it will at no distant date be occupied by an alien race which will threaten the very life and existence of the Australian people. His Excellency's remarks were received with frequent applause, and it was evident that his hearers, who included many of the most influential men in the North, were fully alive to the importance of the situation which he described, and that the institute would receive their warmest sympathy and support.

In the evening the Governor was present at dinner, while the ladies of the Reception Committee entertained Lady McGregor. Later, the institute was open to the general public and a very successful conversazione was held. The building was artistically decorated and numerous exhibits illustrating the work of the institute were on view.

The first report of the institute, dealing with the year ending March, 1912, shows that already a good deal of useful work had been undertaken by the Director, Dr. Breinl, with the assistance of the small staff then at his disposal, consisting of an entomologist, Mr. Frank H. Taylor, and a laboratory assistant. Dr. D. Steel, who had been appointed medical assistant and had begun work in the middle of October, 1911, unfortunately succumbed to pneumonia five weeks later. One of the first investigations undertaken was an inquiry into the etiology of worm nodules in cattle due to the parasite *Onchocerca gibsoni*, and the volume contains a description of the nodules, of the parasite, and of its life-history. Another subject investigated was human filariasis. The report of the entomologist deals with the mosquitos, Tabanidae and tics of North Queensland. Finally Dr. Harvey Johnston, lecturer in biology in the University of Queensland, Brisbane, undertook the study of the cestodes, and the volume contains a report by him, in the course of which he gives a detailed description of eleven new species.

VOICE AND SPEECH TRAINING.

We have received the following communication from Sir Henry A. Miers, Principal of the University of London:

Sir,—An influentially signed memorial was presented to the University some time ago requesting the University to appoint a committee to investigate certain difficult matters in regard to voice and speech training. On January 15th, 1910, a conference was held at the University of London, at which representatives of the following universities were present: Oxford, Cambridge, Durham, London, Wales, Birmingham, Liverpool, Leeds, and Sheffield, in addition to a certain number of the signatories to the original memorial. As a result of the conference it was decided to appoint a committee of investigation to inquire into the present knowledge concerning voice and speech training in order to ascertain the scientific basis upon which speech training should be conducted and what agreement exists in regard to first principles.

Owing to difficulties into which I need not enter at present, only a portion of the work contemplated has been carried out. The committee was not constituted as a whole, but the following persons kindly consented to act in the first instance as a subcommittee to investigate normal healthy breathing in relation to speech:

Mr. H. H. Hulbert, M.A., M.R.C.S.
Dr. Arthur Keith, F.R.S., Hunterian Professor at the Royal College of Surgeons.
Dr. William Pasteur, of the Middlesex Hospital.
Dr. C. S. Sherrington, F.R.S., Professor of Physiology in the University of Liverpool.
Dr. Peter Thompson, Professor of Anatomy in the University of Birmingham.

With the consent of Dr. Pasteur, who has acted as chairman of the subcommittee, I enclose for publication their preliminary report, which I think is likely to be of interest to medical men, teachers, and other persons.

Voice Training Conference.

Report of Subcommittee No. 1.

Reference: To investigate normal healthy breathing in relation to speech.

In view of the unforeseen delays encountered in carrying out the investigations referred to this subcommittee by the conference, it has been decided to present the subjoined preliminary report in the hope that it may prove useful to other subcommittees in the course of their inquiries.

Whilst recognizing that the manner of breathing of healthy individuals may vary within certain limits, the subcommittee are of opinion that some general principles can be laid down with regard to the modifications of breathing necessary for action (speech, singing, and exercise). They are further of opinion that their conclusions can most conveniently be presented in the form of general statements, which they believe to be of fundamental importance.

1. The law of "reciprocal innervation" governs all muscular contraction.*

2. Ideal breathing (for voice) is carried out by those muscular movements which produce efficient expansion of the chest, under perfect control; (provided always those muscles are kept out of action which interfere with the action of respiration—for example, shoulder and neck muscles).

3. Such breathing should bring every part of the lung into activity.

4. Beyond a certain point every additional gain in expansion of the chest is at the expense of control, and is liable to lead to permanent deterioration of the muscles and injury to the lung.

5. Ideal breathing should secure a maximum of mobility of the chest and abdominal walls, such mobility being under perfect control.

It will be advantageous to consider somewhat more fully in what manner, and to what extent, the normal respiratory movements are modified by the introduction of speech.

In health, respiration properly carried out brings the whole lung into activity, and in ordinary quiet breathing this process is (largely) automatic. Breathing for voice introduces a voluntary or quasi-voluntary factor—an addition to the purely respiratory function.

By means which are under the control of the will the capacity of the chest can be so enlarged that varying amounts of air, for varying requirements, can be drawn into it over and above the amount required for the aëration of the blood.

This bringing of the more or less automatic muscular apparatus of respiration under the direct influence of volition is what is meant by control, and without it sustained co-ordinated speech is impossible.

Breathing for voice, as contrasted with the breathing of repose which is automatic and mainly diaphragmatic, presents certain new factors. Of these the employment of the diaphragm as a voluntary muscle is probably the most important.

When the diaphragm acts in this way, in addition to its descent which is the more obvious result, the lower ribs are elevated increasing the transverse diameter of the body at this level, this providing additional space at that part of the abdominal cavity for the viscera displaced by the descent of the diaphragm. Simultaneously the muscles of the abdominal wall come under the sphere of influence. In the breathing of repose the tonus of the broad muscles of the abdomen is such as just to admit of the necessary bulging forward which is determined by the downward displacement of the abdominal contents by the contracting diaphragm. In breathing for voice this tonus is increased, as can readily be appreciated by palpation. The effect of this hardening of the abdominal wall checks the outward bulging (which is no longer necessary) and by steadying the lower part of the chest takes a share in the control of expiration.

Regarding the other factors concerned in the control of expiration, the Subcommittee are of opinion that further investigations must be undertaken before any authoritative pronouncement can be made.

H. H. Hulbert.
Arthur Keith.
W. Pasteur.
C. S. Sherrington.
Peter Thompson.

April 8th, 1913.

Note by Professor Sherrington on "Reciprocal Innervation."

The inspiratory and expiratory muscles are mutually antagonistic. There is reason to believe that like other antagonistic muscle-groups they obey in their relations the rule of reciprocal innervation, that is, when the motor centres of the inspiratory muscles are discharged (activated), those of the expiratory are inhibited; and conversely.

It has been shown that in the normal breathing of the rabbit the electrical current (action-current) of the diaphragm ceases altogether during the expiratory phase, but that in the abnormal breathing of the animal under chloral the action-current of the muscle (diaphragm) persists, even throughout each expiration, although in diminished intensity. The diaphragm and its motor centre are in the latter case never given a full repose at all, and fatigue of respiration ensues.

*See explanatory note by Professor Sherrington at end of this report.

Nova et Vetera.

THE PLATONIC VIEW OF MEDICINE.

It has often been observed that artists are not the best judges of their own department of art. Thus the poet may be a better judge of a picture than a painter, while the painter or sculptor may form a more correct appreciation of a great symphony than a professed musician. Medicine, however, being partly an art and partly a science does not readily conform to this rule. The judgement of the enlightened layman on the general theory and practice of medicine in modern times can seldom be of much value, because it nearly always lacks that indispensable basis of anatomical and physiological knowledge without which any rational opinion on matters medical must be almost impossible. But in the world of antiquity, when no one thought of the possibility of medicine being a science, when the knowledge of anatomy and physiology hardly existed, the views of the elect spirits among the laity possessed a greater importance, for the various departments of knowledge had not become specialized, so that want of technical information was hardly an obstacle to forming a good judgement on a subject which had scarcely elaborated for itself any technical nomenclature. Apart from the value of opinions passed upon particular medical points, the views of a great mind on any subject can never be without interest. The intuitions of genius may give us a more just estimate of the importance of any art or intellectual activity, whether looked at from the point of view of practical utility, or as a means of culture, or as an end in itself, than could be obtained from the actual practitioners of that art. It is in the light of conceptions such as these that it becomes worth while asking what views were held by Plato about medicine and what place it occupied in his scheme of things.

The Platonic philosophy of poetry and art has been frequently expounded and discussed; we all know how Plato banished the poets from his ideal republic, because they were allied to sense and stimulated the emotions, and how he regarded the painter who portrayed a bedstead as inferior to the workman who made it, as being three removes from the true or ideal bedstead. Following in this exalted company of poets and artists, no physicians were to be admitted to his ideal republic. This banishment of physicians causes us the less surprise, as in an ideal state with a system of education fitting each citizen for his own special life's work, together with a somewhat Spartan discipline as regards diet and living generally, the tendency to chronic diseases at all events might have been very greatly reduced; indeed, Plato seems to have thought that they might have been eliminated altogether, if it were not for the practice of the physicians which he believed tended to foster rather than to repress disease. Thus he says in the *Republic:*

> In former days, before the time of Herodicus, the guild of Asclepius did not practise our present system of medicine which may be said to educate diseases. Herodicus had a mortal disease which he perpetually tended, and as recovery was out of the question he passed his entire life as a valetudinarian, he could do nothing but attend upon himself, and he was in constant torment whenever he departed in any way from his usual regimen, and so dying hard by the help of science he struggled on to old age. In all well-ordered states every individual has an occupation to which he must attend, and therefore has no leisure to spend in continually being ill, the carpenter sees no good in a life which is spent in nursing his disease to the neglect of his ordinary calling, when a man has a livelihood he should practise virtue. Asclepius did not want to lengthen out useless lives, if a man was not able to live in the ordinary way he had no business to cure him, for he would have done no good either to the man himself or to the State. The art of medicine was not designed for unhealthy and intemperate subjects, whose lives are of no use either to themselves or others, though as rich as Midas the sons of Asclepius would have declined to attend them. (*Republic*, Bk. III, 406–7.)

In forming an ideal State the question of disease, like the origin of evil, must always be troublesome. Admitting, with Plato, that a certain Dorian simplicity of life might rid us of many chronic diseases, and agreeing, with La Rochefoucauld, that it is *ennuyeux de conserver la vie par un régime trop sevère*, we yet have to face the problem of acute diseases which seem to defy any ordinary human precautions. True, indeed, that some acute diseases are, so to speak, self-limited and end with themselves—that is to say, either recovery takes place or the illness proves fatal—yet in others the acute disease leaves behind it permanent traces of itself, only to mention such cases as scarlet fever, rheumatic fever, or acute poliomyelitis. It may be that increased knowledge with a more subtle observation of the individual from infancy would enable us to detect special premonitory symptoms of a disease and take measures to avoid it, but for the present it is, and still more must it have been in Plato's day, impossible to lay down any scheme of the simple life which should abolish disease.

The uselessness, or even positive harmfulness, of physicians, as depicted in the passage from the *Republic* which we have quoted, though affording the most obvious reason for banishing them from the ideal State, was not the only reason. There was a more profound cause for this antipathy to the healing art and to the professors of it. For Plato's mind was one which revelled in abstractions, the chief object of his philosophy being to realize abstractions and to connect them. For him the unseen world was more definitely real than the seen, and abstractions more worthy of love than personalities. Thus the idea of Beauty was the final realization to which a man eventually rose on the stepping-stones of individual manifestations of beauty. It is this objective reality which has given to the Platonic abstractions or ideas a colour and a life for which we look in vain in the *Ding an sich* of Kant and other German philosophers. To the writings of Plato there clings a perennial charm, because he has been able to invest the universal abstract conception of the mind with the palpitating emotion and shimmering colour which belong to our notion of personality. Such a standpoint naturally leaves small scope for the activities and concerns of the body, so that Plato, particularly in the *Republic*, continually insists on the importance of the removal of all superfluities from existence; thus the life of the highest type of his citizens who are the "Guardians" of the State comes very near to the monastic ideal of mediaevalism, and he outlines for them an almost ascetic rule of life. Since the pursuit of wisdom was to be the highest aim of life, the body could only be regarded from the point of view of its utility in helping or hindering this pursuit. Apart from the various diseases of the body, which of necessity must impair the activity of the soul in seeking after truth, the complex and unnecessary desires of the body are always tending to drag the soul down to a lower level, and to prevent it from realizing those aims which are its ultimate goal. Plato, in his whole theory of education, is considering primarily the soul—and the soul only. The two main elements in his system of education—namely, music and gymnastic—are directed entirely to the education of the soul, this being true of gymnastic no less than music; for Plato's belief was not that the good body improves the soul, but that the good soul improves the body. It seems, indeed, that "excessive attention to the training of the body brings with it evils as great as the undue neglect of it." The body then gradually swallows up the mind; the whole man swells with the pride of conscious strength; by degrees his courage sinks into brutality and his high spirit into insolence; his senses, the windows of his mind are clogged and darkened; his intelligence, neglected and starved, grows weak, deaf, and blind (*Hellenica*, p. 20). "For the athletic habit of body is a sleepy sort of habit, and is liable to upset the health. We see how the professional athletes doze away their life, and how, if they deviate a little from their prescribed diet, they get serious and violent diseases." Asclepius was regarded by Plato as a statesman, and he was so politic as to have exhibited his art only to persons who, being generally of healthy constitution and habits of life, had a definite ailment, such as these he cured by ordinary measures and bade them live as usual, thus consulting the interests of the State; but bodies which disease had penetrated through and through he would not have attempted to cure, as he did not want

to lengthen out useless lives, or that weak fathers should beget weaker sons.

In his various dialogues Plato does not pretend to any absolute consistency of statement about the different subjects with which he deals; varied aspects of a subject strike in upon his subtle and penetrating mind in different moods, and probably no one knew better than he the difficulty of finishing off with precision his opinions on any subject. Thus at times, as we have seen, he regards medicine as of little importance, or even as actually pernicious, because it tends "to educate" diseases, while at others he refers to it in a more lofty strain. Thus in the *Symposium* he makes the physician Eryximachus speak as follows:

> My art informs me that a double love is to be found in all animals and plants and I may say in all that is, for Medicine may be regarded generally as the knowledge of the loves and desires of the body and how to satisfy them or not: and the good physician is he who is able to separate fair love from foul, or convert one into the other, and he who knows how to eradicate or implant love, whichever is required and can reconcile the most hostile elements in the constitution and make them friends, is a skilful practitioner. (*Symposium*, 186.)

This, of course, is the doctrine of the unity of opposites, or rather harmony after discord, which was derived from Heraclitus. In another dialogue medicine is compared to rhetoric. Thus Socrates says:

> Rhetoric is like Medicine, because Medicine has to define the nature of the body and Rhetoric of the soul, or, if we would proceed not empirically but scientifically in the one case to impart health and strength by giving medicine and food, in the other to impart the principle or virtue which you require by the right application of words and training. (*Phaedrus*, 270.)

Again, in the *Gorgias*, which treats of Rhetoric, we have an allusion to cookery as an inferior aspect of medicine, the former being compared to rhetoric and the latter to justice; thus cookery stands to medicine in the same relation as rhetoric to justice. However, Gorgias, the teacher of rhetoric, seems quite certain that the physician would be no match for the rhetorician in the art of persuasion, as appears in the following passage:

> On several occasions (says Gorgias) I have been with my brother Herodicus, or some other physician, to see one of his patients, who would not allow the physician to give him medicine, or apply the knife or hot iron to him: and I have persuaded him to do for me what he would not do for the physician just by the use of rhetoric. And I say that if a rhetorician and a physician were to go to any city and there had to argue in the Ecclesia, or any other assembly, as to which of them should be elected, the physician would have no chance, but he who could speak would be chosen if he wished, and in a contest with a man of any other profession the rhetorician more than any one would have the power of getting himself chosen, for he can speak more persuasively to the multitude than any of them, and on any subject. (*Gorgias*, 456.)

He goes on to say, however, that the Rhetorician ought not to make a bad use of his art, and because he is able to persuade men of anything, he ought not on that account to defraud the physician or any other artist of his reputation: he ought to use rhetoric fairly, as he would also use his athletic powers. Socrates with much truth points out that the power of the Rhetorician can be exercised only over the ignorant in matters which concern medicine.

> *Soc.* He who is not a physician must, obviously, be ignorant of what the physician knows.
> *Gor.* That is evident.
> *Soc.* Then when the rhetorician is more persuasive than the physician, the ignorant is more persuasive with the ignorant than he who has knowledge.

In the same dialogue Plato tells us how the soul and body being two, have two arts corresponding to them: the art of Politics attends to the soul, while the other art, attending on the body, has no specific name but has two divisions—one of them being gymnastic and the other medicine. In Politics there is a legislative part which answers to Gymnastic, just as Medicine corresponds to Justice. Now these four arts, which deal with the body and the soul, are simulated by flattery, which has no regard for men's highest interests, but is ever deceiving men into the belief that she is of the highest value to them. Thus, Cookery puts on the disguise of medicine and pretends to know what food is best for the body; and if the physician and the cook had to enter into a competition in which children were the judges, or men who had no more sense than children, as to which of them best understands the goodness or badness of food, the physician would be starved to death. But if the body presided over itself, and were not under the guidance of the soul, and the soul did not discern and discriminate between cookery and medicine, but the body was made the judge of them and the rule of judgement was the bodily delight which was given by them, then the word of Anaxagoras would come true: Chaos would return and cookery, health, and medicine would mingle in an indiscriminate mass. (*Gorgias*, 465.) Rhetoric bears the same relation to the soul which cookery has to the body.

Plato doubtless thought that most diseases could be treated by diet, and even this was to be deprecated if it involved much alteration from one's ordinary mode of life. Thus, he says in the *Timaeus*:

> Diseases, unless they are very dangerous, should not be irritated by Medicines, since every form of disease is in a manner akin to the living being whose complex frame has an appointed term of life, and if any one, regardless of the intention of Nature, would get the better of their disease by medicine, he only increases and multiplies them. Wherefore we ought always to manage them by regimen, as far as a man can spare the time, and not provoke a disagreeable enemy by medical treatment. (*Timaeus*, 89.)

In the same dialogue he speaks of diseases of the soul which originate in the body, and these are madness and ignorance. Whatever affection gives rise to either of them may be called disease:

> Excessive pains and pleasures are justly to be regarded as the greatest diseases of the soul, for a man who is in great joy or great pain, in his irrational eagerness to attain the one and avoid the other, is not truly able to see or to hear anything; but he is mad, and is at the time quite incapable of any participation in reason.

Plato was fond of illustrating his arguments with pictures drawn from Medicine and Navigation; oddly enough; these two arts have been often compared, and with some reason, for both depend on scientific principles, and consist in the application of science to particular and varying conditions, guided by natural acumen and controlled by long experience. Plato foresaw the absurdity of the State trying to lay down the law either for the physician or the pilot, and says:

> It may be a great evil that physicians should kill their patients or captains cast away their ships, but it would be a far greater evil if each particular detail in the practice of Medicine or Seamanship were regulated by law.

There is a fine passage in which he points out the impossibility of any art imposing upon itself universal rules: Thus:

> Let us put to ourselves the case of a physician who is about to go into a far country, and is expecting to be away a long time from his Patients; he leaves written instructions for the Patients or pupils, under the idea that they will not be remembered unless they are written down. But what would you say, if he came back sooner than he had intended, and, owing to an unexpected change of the winds or other celestial influences, some other remedies happened to be better for them, would he not venture to suggest those other remedies, although differing from his former prescription. Would he persist in observing the original law, neither himself giving any new commandments, nor the patient daring to do otherwise than was prescribed, under the idea that this course only was healthy and medicinal, all others noxious and heterodox? Viewed in the light of Science and true art would not all such regulations be utterly ridiculous? (*Politicus*, 295.)

In *The Laws* we read with some surprise that Plato assumed it to be quite natural when patients only required to be given directions as to their diet and general line of

life, that then an inferior practitioner should be sought, and only when medicine had to be given was it considered necessary to have recourse to a properly qualified physician. The inferior doctor or "assistant" was one who acquired his knowledge of medicine by obeying and observing his master—empirically, not rationally, as the manner of freemen is who have learnt scientifically themselves the art which they impart to their pupils; and then he goes on to say how "the inferior or slave doctor never talks to his Patient individually or lets him talk about his own ailments, the doctor prescribing what he thinks good out of the abundance of his experience, as if he had no manner of doubt. But the doctor who is a freeman attends and practises upon freemen; and he carries his inquiries far back, and goes into the nature of the disorder; he enters into discourse with the patient and with his friends, and is at once getting information from the sick man, and also instructing him as far as he is able, and he will not prescribe for him until he has first convinced him; at last, when he has brought the patient more and more under his persuasive influences and set him on the road to health, he attempts to effect a cure." (*The Laws*, 720.)

Though to the Greek generally, as to most sane minds, disease must be regarded as wholly an evil, yet Plato, in one passage in the *Republic*, seems to regard a mild degree of ill health as partly beneficial, in that it may prevent a man from joining in the hurly-burly of politics and dispose him to the study of philosophy; he refers to this as the "bridle of Theages" (*Republic*, vi, 496), which restrained his friend from taking part in the active life of the world and made him a worthy student of philosophy.

The extraordinary interest of the modern world in medicine and disease is wholly alien to the Platonic conception of them. To Plato, as to the ancient world generally, disease was a tiresome and meaningless exception to the ordered regularity of a harmonious life; it was a kind of square root which would not come out, belonging to the realm of τὸ ἄπειρον, which no philosophic mind would waste time in studying. The ordinary citizen ought to be healthy, sane, and strong, and the man who was properly occupied had "no leisure to be ill."

Focussed upon the State, as the mind of the antique world undoubtedly was, the needs of the individual were less minutely considered than is the case with us, and not only sickness but also old age was apt to come off second best. For the modern world the influence of Christianity has shifted the centre of gravity from the State to the individual, and the special value which is thus set upon each individual soul brings with it a more tender solicitude for the healthy condition of the body. Then again with the increase in the apparatus of living, and the general complexity of modern life, every aspect of existence is subjected to a minute analysis, so that perhaps more time is expended on the means of living and the side-issues of life than on life itself. Among the ancients life was infinitely more simple than with us, but it must be confessed that to some extent the simplicity was purchased by ignoring some awkward facts such as disease, and the discomforts of old age; indeed, with regard to the solution of many difficult social problems the ancients had a genius for cutting knots which the modern world has a love for trying to untie.

HEISER, in his quarterly Report of the Bureau of Health for the Philippine Islands, states that during the month of January there were only 502 deaths, as compared with 698 for the same month of the previous year; during February there were 445 deaths, as compared with 611; and during March 451 deaths, compared with 732. As the population of the city is constantly increasing, it is apparent that the improvement is even greater than the numbers indicate. The decrease in the number of deaths is largely attributed to the improved city water supply and the more general use of the new sewer system. The many other sanitary reforms which have been brought about—as, for instance, the proper collection and disposal of garbage, the reduction in the number of mosquitos, the rejection of unwholesome food, regulation of the milk supply, the improved sanitation of houses, the prompt isolation of dangerous communicable diseases, and many other factors—are also no doubt responsible to a large extent for the improvement in the public health.

LITERARY NOTES.

WE learn from Messrs. W. and G. Foyle that they have just opened at 5, Manette Street, adjacent to their premises in Charing Cross Road, a foreign book department, comprising what they describe as the largest stock of secondhand foreign books in this country. The books are arranged in strictly classified order. The firm invites readers of the BRITISH MEDICAL JOURNAL to call and inspect their collection.

Messrs. J. and A. Churchill will issue the following works in the autumn:—*Dental Anatomy: Human and Comparative*, by Mr. C. S. Tomes (seventh edition), revised by Dr. Marett Tims and Mr. A Hopewell-Smith; *Industrial Organic Analysis*, by Paul S. Arup, with a foreword by Dr. J. C. Irvine, Professor of Chemistry at the University of St. Andrews; *Quantitative Analysis in Practice*, by John Waddell, Assistant Professor of Chemistry, School of Mining (Queen's University), Kingston, Canada; Bloxam's *Chemistry, Inorganic and Organic* (tenth edition), thoroughly revised by A. G. Bloxam and S. Judd Lewis; *Practical Chemistry: Qualitative Exercises and Analytical Tables for Students*, by the late J. Campbell Brown, Professor of Chemistry, University of Liverpool (sixth edition), revised by Dr. G. D. Bengough, Lecturer on Metallurgy, University of Liverpool.

Among Messrs. Methuen's announcements of forthcoming books for the second half of 1913, are the following: *The Threshold of Religion*, by R. R. Marett, Reader in Social Anthropology, Oxford; and *Minds in Distress* by Dr. A. E. Bridger. Mr. Marett's work, which is described as a study in the psychology of religion, suggests that the primordial category of religion consists in the notion of power rather than in the notion of spirit. It may be asked, If so, what about magic, which also participates in the notion of power? The reply is that there is present in religion, even in the early stage, the saving grace of humility which is absent in magic. Dr. A. E. Bridger's work is described as a psychological study of the masculine and feminine minds in health and in disorder. The author maintains that both in time and in importance the psychic must take precedence of the physiological and the anatomical; that mind is the generator, tissue and function the servants; that life is a problem set by the senses, but not to be resolved unaided by them.

The July number of *L'Hygiène* is mainly occupied with a report of the Congress of the Alliance of Social Hygiene held not long ago in Paris. The inaugural address was delivered by M. Léon Bourgeois, who dealt with the need of public education in social hygiene. In the course of his remarks he touched on the preventive mission of the doctor, and expressed the opinion that to the task of "doctor of disease" must be joined in future the functions of "doctor of health." The doctor should make periodical inspections to note any appearance of oncoming disease. The "visit of health" should to a large extent replace the "visit of sickness." Professors Albert Robin and Letulle dwelt on the same subject, which is also discussed by the writer who adopts the pen name of "Horace Bianchon." He appeals to the mutual aid societies to take steps in this direction and to allocate for the prevention of disease a part of the funds which are now often wasted on its treatment. The August number contains an article by the same writer on the effect on the health of the army and the nation of the enrolment for military service of young men at the age of 20. Professor Blanchard gives an account of the struggle against hookworm and other parasitic diseases in America and the organization for that purpose which the munificence of Mr. Rockefeller has made possible. Dr. C. W. Stiles is at the head of the organization, which consists of seventy assistants and a large staff of micrographers and secretaries. During the last three years they have visited the worst foci of disease, sought out persons suffering from it, and opened dispensaries, where the patients have been treated with thymol. The success of this campaign has already been so remarkable that Professor Blanchard thinks it ranks with the marvellous results obtained in Cuba and elsewhere in the struggle against yellow fever and in Italy against malaria. A particularly interesting article is one on the famous old

Quinze-Vingts hospital for the blind in Paris. It was founded by St. Louis the Ninth on his return from the Holy Land, about 1254. The article, which is by Dr. E. Valude, gives a complete account of the buildings and working of the institution. The ophthalmological clinic is attended each day by more than 200 cases, and about a thousand operations for cataract are performed every year. Dr. Maurice de Fleury discusses the mechanism that produces neurasthenia. Dr. J. Laumonier contributes an interesting article on our means of defence against heat. Professor Antonin Poncet of Lyons gives an account of his successes in the treatment of tuberculous osteo-articular disease by sunlight. Heliotherapy has in the last ten years wrought a transformation in treatment. Whereas formerly radical treatment meant amputation and conservative treatment resection, now resection has come to be looked upon as the radical measure, and it is only in exceptional cases that it is required. Edmond Cleray gives an account of a French woman professor of obstetrics in the eighteenth century. This was Madame du Coudray, a licensed midwife of the Paris Faculty, who about 1750 began to teach midwives with the help of a mannequin. So successful was her teaching that a patent was granted by the King for its use in the instruction of midwives throughout the kingdom. The illustrations in both numbers are varied and appropriate in subject and admirably reproduced.

Gymnastics have long been recognized as a necessary part of a child's education; but of recent years they have also been advocated as a very effectual means of stimulating the mental as well as the physical growth, and as contributing as much towards the development of the mind as that of the body. The July number of *The Child* contains an interesting article on this subject by Dr. Edgar F. Cyriax, who warmly advocates the use of medical gymnastics for backward or abnormal children. This little known form of treatment, which aims at putting into proper working order the sense organs and muscles which in the normal person incite the brain cells into activity, and whose functions in the mentally deficient are either wholly or partially in abeyance, consists of the manual stimulation of certain nerve centres, or, in the less advanced cases, of a system of exercises designed to produce the same effect. This enforced bodily activity usually acts like a spur upon the arrested mental development of defective children, whilst even in cases of congenital idiocy a marked amelioration may often be obtained. Dr. Cyriax, who claims to have "effected considerable benefit by means of medical gymnastics in cases considered to all intents and purposes practically hopeless," tells us that it is rare indeed to find a patient who derives no benefit from this form of treatment, which at the present moment appears to offer a wide field for investigation to those who are interested in the different manifestations of mental instability in childhood and youth. The July number of *The Child* also contains an article by Mr. Macleod Yearsley on the causes of deafness in childhood, and a short account by Dr. C. E. McCombs of child hygiene in America, whilst Mr. James Cantlie has contributed an excellent article on the health of the adolescent and the risks to which it is constantly exposed.

The August number of the *Arena* gives in its "Past and Present" series an illustrated account of University College, Reading, which should be of particular interest at the present time in view of the fact that the college hopes shortly to obtain the status of an independent university. The article gives an historical sketch of the growth of the college since its infancy, and special stress is laid on the importance attached to the residential system. It is claimed that there exists at Reading a corporate collegiate life unlike that which is to be found in any of the other modern universities of England. The college is not merely a local institution, but one that fulfils needs of real national importance. Another university institution dealt with is Dalton Hall, Manchester, which is interesting as being the oldest hall of residence now surviving in a modern university. Those of our readers who are interested in academic dress will find entertainment in an article on Oxford and Cambridge robes, which has been written by Mr. Noel Barwell, who has made a special study of the subject. In an article entitled "The Art of Collecting Autographs" Mr. R. H. Cust publishes some letters sent by members of the nobility in the year 1835 to an Eton boy who obtained them on the false plea of inquiring for the character of imaginary servants. The amount of trouble which the distinguished persons took to make inquiries into the matter is remarkable, as is the courtesy with which they replied. O'Connell's reply is delightful:

Dear Sir,
I make a point of never giving my autograph to anyone.
Yours faithfully,
DANIEL O'CONNELL.

Other articles which are worthy of special mention are a short paper on the Indian Civil Service Examination, a literary sketch entitled "Two Gardens of France," by Mr. Arthur Eckersley, and an article-review by Mr. Gilbert Wakefield on Dr. Grey's book *Public Schools and the Empire*. Holiday matters are dealt with in the two articles named An Inconsequent Holiday and the Playgrounds of Europe. Mr. Christopher Stone has contributed a short sketch entitled "A Suffragette," and Mr. Wilfred Blair the first of a series of poems under the heading "Ancient Tales Retold." The illustrations are of the high order of excellence which we have learnt to expect in this admirably conducted periodical.

Dr. J. Westall Anderton (Arnside, Westmorland) writes:

Apropos of Dr. Robert Bridges's story in the JOURNAL of July 19th, I am reminded of a not dissimilar incident which took place at a northern hospital some few years ago. One of the residents, called to see a newly-admitted patient, prescribed for her a stock cough mixture, writing on the bed ticket:

Mist. Expect. ter die.

The ward sister, on going to her a few hours afterwards, found the woman in tears, with a rise in temperature of 5°, which speedily went down when she was assured that the writing was of the nature of a remedy and not of a prognosis.

The authenticity of Ambroise Paré's famous phrase, "Je le pensay, Dieu le guarit," was much debated in former times, but the authority of Malgaigne has, since his edition of Paré's work appeared, generally been accepted as final. To make assurance doubly sure, Dr. Flandrin of Grenoble has made a careful examination of the original sources. It is in the fourth edition (Paris, Gabriel Buon, 1585) that there appears for the first time the *Apologie et Traicté Contenant les Voyages faicts en divers lieux. Par Ambroise Paré, Conseiller et premier chirurgien du Roi.* In that chapter the author, relating the case of Captain le Rat, wounded by a shot from an arquebus in the ankle at the siege of Turin in 1536, wrote that he had dressed his wounds and God had healed them. The text, reproduced in facsimile in the *Chronique Médicale* for August, which contains the result of M. Flandrin's researches, is as follows:

D'avantage ie veux icy monstrer aux lecteurs les lieux & places ou i'ay peu apprendre la Chirurgie, pour tousiours mieux instruire le ieune Chirurgien. Et premierement en l'an mil cinq cens trente six, le grand Roy François enuoya vne grande armee à Thurin, pour reprendre les villes & chasteaux qu'auoit pris le Marquis du Guast, Lieuyenant general de l'Empereur: où monsieur le Connestable, lors grand Maistre, estoit Lieutenant general de l'armee, & mõsieur de Mont-jan Collonnel general des gens de pied, duquel lors i'estois Chirurgien. Vne grande partie de l'armee arriuee au pas de Suze, trouuasmes les ennemis qui tenoyent le passage, & auoyent faict certains forts & tranchees, de façon que pour les faire debusquer & quitter la place, il conuint combattre où il y eut plusieurs tuez & blessez tãt d'vne part que d'autre: mais les ennemis furent contraints se retirer & gangner le chasteau, qui fut en partie par le Capitaine le Rat, qui grimpa auec plusieurs soldats de sa compagnie sur vne petite montagnette, là où ils tiroyent à plomb sur les ennemis, il receut vn coup d'hacquebute à la cheuille du pied dextre, où tout subit tomba en terre: & alors dit, A ceste heure le Rat est pris. *Ie le pensay, & Dieu le guarit.* Nous entrasmes à foulle en la ville, & passions par sus les morts, & quelques-vns ne l'estans encore, les oyons crier sous les pieds de nos cheuaux, qui me faisoit grande passion en mon coeur.

Flandrin points out that the cause of a good deal of misapprehension has been that in the editions earlier than that of 1585 the history of the captain and his wound is not mentioned. Phrases such as "Notwithstanding the said Lord, thank God, was cured," and "Whom also I dressed till he was healed, thanks be to God," have misled critics into thinking that the historic phrase was only the fixation in a striking form of a thought expressed in manifold ways in Paré's narratives, and that it was really invented by some commentator.

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ART AND INSANITY.

During the meeting of the International Congress a number of pictures executed by the inmates of asylums and collected by Sir George Savage, with the co-operation of Dr. Stoddart, the Superintendent of Bethlem Hospital, were exhibited in one of the large rooms of that institution. More was to be got from studying them than the mere indulgence of curiosity, although no indication was given of the kind of insanity their authors suffered from, nor of their previous history. Indeed, the impression was left that, given these data, drawings might prove a fruitful line of study and a good index of the patient's state, for, after all, drawing is a mode of expression in which the individuality of the person is well marked.

It may be premised that insanity, even strongly marked, does not of necessity impair artistic skill; thus there were several drawings by a well-known deceased artist, who cut his father's throat, which do not differ from his earlier work either in execution or conception, though a few—as, for instance, one depicting a lunatic in chains—would hardly have been conceived in his saner times. There were others by different artists which, though slight, are of very high artistic excellence—as, for instance, some studies in coloured chalk on tinted paper of Coquelin in various parts, and a tender little landscape of Bethlem itself under an evening light. But it may be observed in passing that landscape is much less represented than figure subjects; the repose of landscape does not seem very often to appeal to disordered minds.

There was a pen-and-ink head of Gladstone, wild and cleverly conceived in a spirit of moderate caricature, but this might have been done by any one with the requisite skill whose admiration for that statesman was qualified by difference of opinion. There were also some excellent designs for posters or advertisements.

Leaving these pictures upon which lunacy has set no stamp, we come to a few in which the draughtsmanship is still good but the motive more doubtful. Thus, there is a clever pen-and-ink sketch comprising several figures, with legends such as "A 10 per cent. commission to doctors sending patients here," and the like. But perhaps the most interesting of this class were a series of outline drawings, all from the same hand, strongly reminiscent of the work of the Post-Impressionists. They are nude figures, in which the easy flow of line shows marked facility combined with a disregard of correct drawing; the limbs are out of proportion and do not join up properly with the body, and yet it is not in the least the incorrect and cramped drawing of a child or of an unskilled draughtsman. One is executed in squares, and is absolutely a "Cubist" drawing, though much more intelligible than many of those which recently found a place on the walls of the Grafton Gallery. It would be very interesting to know whether the patient who executed these had seen the Post-Impressionist exhibitions or had heard of them, or whether he evolved the manner from his own inner consciousness. It would be going too far to say that these drawings are any proof that the Post-Impressionists owe their peculiarities to disordered minds; and yet it is an uncomfortable fact that, of the three artists who are recognized as the founders of the school, one expatriated himself and lived the life of a native in the South Sea Islands; the second, after committing a murderous assault with a razor upon the first, died by his own hand whilst under confinement; the third, however, appears to have had a clean record. There is a goggle-eyed face, much like Post-Impressionist work, which comes from the hand of another insane person; and, from other hands again, an Impressionist peacock and some weird creatures more or less bearing the same stamp of extravagant fancy and disregard of correct drawing.

Then there are several drawings, of some decorative merit but with less evidence of artistic skill, which are combined with a geometrical figure such as might be found on old astrological prints; at least, this appeared to be its character. These geometrical figures are executed with care and precision, but the intention of the whole thing is hard to divine. The lesson to be drawn from them seems to be that a certain consistency running through the whole series and care in execution are not incompatible with the adoption of an unintelligible design.

Side by side with the drawings of persons of unsound mind were placed a number of drawings executed by normal children under the age of 10 at an elementary school. It has been shown by an American writer (Chamberlin) that the work of young children bears a singularly close resemblance to that of savages, both in execution and in conception, and in the collection at Bethlem were many drawings by insane persons which are upon the same plane in both respects. They are neither better nor worse than the children's drawings, and are very closely similar to them. With respect to these it would be interesting to know what degree of skill had been possessed by the executants before they became of unsound mind; it would seem unlikely that an adult unaccustomed to draw would, whilst an inmate of an asylum, take to this form of expression. On the other hand no person of scund mind would be satisfied with such representations as we see here, but would tear them up. There are two drawings which have an especial interest. They are obviously the work of a professional architect; one is an elevation, excellently executed, and having just the slight indication of landscape surroundings usual in such architectural drawings. The other is another elevation of the same building, and, so far as the building is concerned, it is nearly as good as the first. But it is set in a more complete landscape which is executed in an absolutely puerile fashion; thus on his own ground the artist was possessed of his former skill, but when he got beyond it he was satisfied with setting his architectural work in a wretched surrounding, not a bit better than the work of the young school children. As the elevation is that of Bethlem Convalescent Asylum it would be interesting to know which of the two was executed first in point of time.

None of the drawings exhibited reveal the smallest indelicacy of feeling, but in their selection those displaying sexual tendencies were excluded, and the absence of the smallest impropriety may have been due to the rigour of the censorship.

But notwithstanding that for the purpose of close psychological study the exhibition was incomplete both in this respect and in the absence of case records, it was exceedingly interesting alike from the point of view of art and of psychology. It has been suggested by a writer in the *Times* that from the artistic standpoint there may be a gain for the artist in being unfettered by the necessity of pleasing the public eye, and in not caring in the least what others think of his work; on these grounds he defends the Post-Impressionists. It is true that early man in his drawings upon bone and on the walls of caves did display a rude artistic power, and the Japanese are able, though disregarding perspective, to please the cultivated eye. But there are not wanting examples of good artists who from senile degeneracy have come to paint in the manner of the Post-Impressionists, or of children, or of the inmates of asylums; further, the work of infant prodigies, however remarkable, always lacks that something which is needed to satisfy the educated eye. It does not, then, seem worth while to go back to the outlook of the child or of the savage in order to escape the academic trammels. At all events, this exhibition lends no support to ideas of this kind.

In the absence of histories of the patients it is not possible to speak without fear of contradiction; but, so far as can be judged from inspection of the drawings, every one worthy of consideration from the artistic point of view betrays the practised hand, and does not suggest the spontaneous evolution of an art expressive of untrammelled ideas. In other words, degeneracy from a previous standard of excellence is strongly suggested rather than an advance along hitherto untrodden paths.

MEDICAL HYDROLOGY AND ITS ALLY.

ONE of the questions which arises annually for settlement is as to the number of Sections in which the scientific work at the next annual meeting shall be done. Claimants for the allocation to them of a special territory are generally numerous, but over-fine division of subjects is generally felt to be undesirable. The matter is not one that can advantageously be made the subject of a standing rule, for the town where the meeting is to be held may offer special facilities for the fruitful discussion of some particular class of subject. Thus, to take one example, we find that a Section devoted to the discussion of industrial hygiene and diseases of occupation was instituted at the Annual Meeting at Manchester in 1902, and continued at the meetings in Leicester in 1905, and in Sheffield in 1908. At Birmingham in 1911 and at Liverpool in 1912 the subject of industrial disease was included with that of state medicine in general in the business of a Section bearing a joint title. When the arrangements were being made for the annual meeting in Brighton this year, a plea was put forward for the institution of a Section devoted to the discussion of subjects comprised within the terms "balneology and climatology." The reasons for instituting a Section dealing with these allied subjects in a health resort such as Brighton were well stated by the President, Dr. Ainslie Hollis, and carried conviction. The organization of this first Section of Balneology and Climatology was entrusted to Dr. Copeman of Brighton, and despite inherent difficulties and a certain not very comprehensible lack of enthusiasm on the part of some who might be supposed to be specially interested in spa and allied treatment, he carried it through with much success.

An account of what was done in the Section appears elsewhere in this issue, and it will be noted that, with one or two exceptions, all the eight subjects discussed were special in character. To bring this about is in itself something of an achievement, for those who are readers of *Transactions* need not be told that it sometimes happens that at gatherings held for the discussion of balneology and climatology most of the subjects raised really belong to general medicine rather than to any special department thereof. One factor in contributing to this undesirable result is the circumstance that balneology, or medical hydrology—to use the term for which Dr. Fortescue Fox made out a good case in his Hyde Memorial Lectures a couple of years ago—lends itself in its present state of development much less readily to really scientific discussions than to expositions of the conflicting claims of different spas.

Balneological methods properly so called have features in common all the world over, and, though the chemical composition of the waters is very various, differences in composition and in the mode of application are not usually so great as in themselves to explain the special therapeutic results claimed for their use. On this and other grounds there have been people who have maintained that rather than depend therapeutically on the chance composition of natural waters it would be wiser to decide what indications it is desired to meet in the case of different disorders and to construct artificial waters accordingly.

Apart from other reasons, such as those connected with climate and regimen, it is very doubtful whether in the present state of knowledge this proposal is scientifically defensible. Observations recently made on the effect of very minute traces of metals on protoplasm, especially perhaps those made on yeasts used in brewing, have yielded very remarkable results, and although it is a long step from the yeast cell to the mammalian organism the influence on growth and metabolism now known to be due to hormones—or "chalones," to use Sir Edward Schäfer's more comprehensive term—shows the importance of very minute quantities of substances produced in the animal economy. Further, the new ideas which are surging up on the border-line between physics and chemistry suggest that something in the therapeutic action attributed to natural mineral waters, as compared with the artificial products of the chemical laboratory, may be due not merely to the quantities of the salts present, but to the mode in which they exist in the water. There is also the question of the possible influence of the presence of radio-active substances in such waters as those of Bath, a subject upon which it would not be wise at present to dogmatize.

Climatology, in so far as it is concerned with the record of climatic conditions, is in itself a comparatively simple subject, a mere matter of the careful use of barometers, thermometers, wind gauges, and other meteorological appliances. But the case is very different when the term is made to cover climatological therapeutics; it then becomes a subject of immense difficulty, one in real knowledge of which little progress has perhaps been made, but which lends itself all the better on that account to careful study and unbiassed discussion.

So far there has been too great readiness to assume, on the basis of very few data, that a climate of such and such general characteristics must

necessarily be favourable to persons suffering from disorders presenting such and such clinical phenomena, and in consideration of the results to fail to distinguish between those which are certainly due to true climatic factors and those which can much more easily be explained by other features of the individual's environment for the time being. It should not be forgotten that many of the views on the subject of climatology which still obtain originated at a date when the direct dependence of many disorders on the life processes of micro-organisms was little if at all recognized, and that pharmacologically, so to speak, the study of the effect of a given climate is far more difficult than that of any drug.

One of the tendencies to which allusion has been made is well illustrated by the history of the treatment of tuberculosis. In turn we have seen patients inspired with a belief that their recovery depends on residence at sea-level in warm climates of high relative humidity, such as that of Madeira and the West Indies; in climates which are warm, yet dry, such as those to be found within a short distance of the southern coast of the Mediterranean; in those which tend to be mild yet relatively bracing, as on the French Riviera; in dry, cold, rarefied atmospheres, such as characterize the higher mountain ranges of Switzerland; or on constant exposure to sea air, as during sea voyages. The general opinion now seems to be that, though for certain individual sufferers from tuberculosis one climate may possibly be more favourable than another, the cure of an ordinary case, if possible at all, can be obtained almost equally well in any locality provided that its atmosphere is pure and reasonably free from sudden and violent fluctuations in temperature and the rate of air movement.

The first discussion in the Section at Brighton was, appropriately enough, on sea bathing, and Dr. Tyson of Folkestone, who introduced it, not only discussed its physiology and therapeutics, but laid down certain contraindications to which his long experience gives special value. Dr. Hobhouse, in a paper on the climate of Brighton in relation to disease, incidentally expressed an opinion which illustrates the complexity of the subject. From a comparison over a number of years of the temperature and its range, of the duration of sunshine, and of the amount of precipitation in fog, rain, or snow, he was unable to attribute the differences to be observed in the effect produced by residence at the several seaside resorts from Folkestone to Bournemouth to these phenomena or any combination of them. He was therefore driven to the conclusion that the different effects must be due to variations in aspect, soil, and in the shelter afforded from prevailing winds.

Custom counts for a great deal in the prosperity of seaside resorts, and the discussions at Brighton revealed a general agreement that the belief of British parents in the advantages of a visit to the seaside for children is well grounded, and it may be added that it is not only in summer that such a visit may be very advantageous to them. But in the matter of mineral water stations custom rather runs against this country to-day, for there is a fashion for seeking foreign spas. It will therefore be noted with particular interest that Dr. Neville Wood made out a good case for the suggestion that the aim of the authorities of British health resorts should be less to stem the outflow of British invalids to foreign health resorts than to attract foreign invalids to British spas. One way of doing this which has been too much neglected in the past is to make our watering-places more attractive.

TROPICAL AUSTRALIA.

THE opening of the enlarged Institute of Tropical Medicine at Townsville, Queensland, may be regarded as marking the beginning of a new era in the study of tropical diseases. Hitherto attention has been almost wholly devoted to tropical diseases as they affect countries supporting a large indigenous native population. The countries of tropical America may possibly be quoted as exceptions to this statement, but even these countries can hardly be considered to be peopled by a pure European stock. Tropical Australia, however, is at present an essentially European, practically entirely Anglo-Saxon, colony, and has only a very small native or coloured population. It thus presents conditions radically different from all other tropical countries. In consequence of the sparsity of the population tropical diseases are, as yet, comparatively rare, though it is true that a large variety occur. There is thus absent at the very outset one of the most serious obstacles which the white man has had to face in his conquest of the tropics. In tropical Australia he has not yet learnt to fear the menaces of malaria, of plague, of sleeping sickness, yellow fever, and the numerous other essentially tropical diseases. The only tropical diseases which have established a firm foothold are ankylostomiasis, filariasis, and dengue fever.

In view of this relative absence of tropical disease, it is evident that in tropical Australia there is an ideal field for the study of that other factor which is held responsible for the white man's inability to live in the tropics—namely, climatic conditions. So long as tropical diseases can be held in check and their spread prevented, North Queensland will continue to offer a perfect field for this study, and even for that purpose alone the existence of the Australian Institute of Tropical Medicine would be justified.

The new laboratories have been completed and equipped with a staff of highly trained British scientists. Work has been in full swing since the beginning of this year, and already results are appearing which, both from a purely scientific and a practical point of view, have shown that the Institute bids fair to occupy a prominent position amongst establishments of its kind.

The question whether tropical Australia can be colonized by Europeans alone was fully dealt with a year or more ago at the Royal Colonial Institute by a number of men who were, presumably, fully alive to the peculiar local conditions, and the opinion of the majority was unhesitatingly affirmative. The whole question of the white man in the tropics is still *sub judice*, and this applies particularly to tropical Australia. The conditions there are very different from what they are in India or tropical Africa. The absence of native labour necessitates a much more active and strenuous life for white men and women of all classes, and this, though it leads to many hardships, may have the effect of maintaining the physical standard.

With the history of only the past fifty or sixty years to guide us, there has so far been no evidence to show that white men cannot permanently populate tropical Australia. The question is not so much, "Can they?" as "Will they choose to do so in view of the hardships and discomforts?" The question is essentially an economic one, and it may be well to analyse the factors involved. There is, first of all, the discomfort due to climatic conditions, the close muggy heat and heavy rains of the coastal regions, and the dry scorching heat and low rainfall of the

inland. Then there are the natural environmental conditions, the plagues of flies (biting and non-biting), of mosquitos, of white ants, and numerous other kinds of vermin. Particularly in the less settled parts, but even in some of the larger townships, these constitute a very serious source of annoyance. As time goes on we may expect that these nuisances will to some extent be mitigated, but without a large increase in population and enormous sanitary schemes the process must be slow. Lastly, there are the social and domestic discomforts. In a new country such as North Queensland a very high standard of social culture or domestic comfort cannot be expected. In these respects the country is still in a primitive state, and few serious attempts have so far been made to effect permanent improvement.

In all the towns there is a considerable floating population. A large proportion of junior men in business, Government officials, and even workmen regard their sojourn in the North merely as a step towards a position in the South. They have no intention of settling down, and are, so to speak, only in camp. We do not forget that even in English towns there is always a certain proportion of men eager to be on the move, but in tropical Australia this disposition is much accentuated. Even leading business and professional men are actuated by the same desire. With few exceptions, their chief aim is to make sufficient money to enable them to clear out.

In spite of all this there are many people in North Queensland, both men and women, who have lived there, in the best of health, upwards of thirty years, who have brought up large and healthy families, and who find the conditions agreeable. They afford standing evidence that Europeans can live well in tropical Australia and rear healthy offspring to the second generation at least. It is too early to speak yet of the investigations of the Institute on this matter, but, so far as they have gone, we believe, they show little, if any, tangible deterioration in the third generation. There is a popular belief that the blood "becomes thin" after residence in the tropics, but the evidence so far does not support this; and, although the women and children certainly look paler than in England, they are not any more so than in Brisbane and several towns in the South. The North Queenslander, indeed, is a typical Australian. At the same time, it must be remembered that there has been a continual stream of immigration both from Britain and from the South. The intermixture of this fresh blood may have had some effect in maintaining the standard of the race, but this supposition can only be confirmed or refuted by future inquiries.

In view of what has been said it is evident that some inducement must be held out to prospective settlers. They must first of all be assured that they and their offspring will suffer neither impairment of constitution nor undue ill health. If the Institute of Tropical Medicine is eventually in a position to give these assurances it will have done good work. Beyond this, however, inducement will have to be offered in the shape of compensation for the discomforts and disadvantages to which we have alluded. Some hope of a more easily acquired and greater prosperity, and of a more pleasant and less arduous life, must be held out before the North will possess any very great attraction for immigrants. There is little doubt that if Australia pursues her present policy and intends to carry out the policy of colonizing the North with her own sons and daughters, she will have to be prepared not only to pay generously, but at the same time to make all due allowances for those who are submitting themselves as subjects for one of the greatest experiments of the present century.

EGYPT AND THE SOUDAN.

LORD KITCHENER'S report for 1912 states that 50 students joined the School of Medicine during that year, raising the number in attendance to 244. The number of students in the school and the work in the laboratories show constant growth, and it is recognized that additions both to accommodation and staff are desirable. The requirements are to be met as soon as funds are available. Further provision was made in 1912 for infectious diseases. The free dispensaries in 1912 in the country districts numbered 42, and gave relief to 32,000 persons, as against 28,000 in 1911. Two new permanent ophthalmic hospitals have been opened—one at Mansura and the other at Beni Suef. Travelling hospitals have been established by the provincial councils of Gharbia and Assiut, and others are in contemplation. The first portion of the new Khanka Asylum has been opened for some time, but the asylum at Abbassia still remains overcrowded, though every effort is being made to relieve the strain on the present accommodation. The total number of lunatics in the two hospitals was 1,651, an increase of 263 over 1911. A slight reduction in the infant mortality in the principal towns was recorded during the year. The prescribed course in first aid has been completed by 170 village barbers, who have entered upon their duties. They have been supplied with simple remedies and bandages. A beginning in the regular training of midwives has been made by the establishment in Cairo by the Government of a maternity school, and similar institutions are being established in provincial centres. During 1912 there was a satisfactory diminution in the number of outbreaks of plague, and also in the total number of cases and rate of mortality. The decrease in mortality was mainly due to the fact that the number of pneumonic cases, practically confined, as usual, to Upper Egypt, diminished by more than a third. The Plague Research Service, established at Assiut under Dr. Petrie in 1911, continued its inquiry in Upper Egypt, and has issued a progress report. The destructive epidemic of cholera which occurred among the Turkish troops in Rumelia after the outbreak of the war between Turkey and the Balkan States, constituted a serious danger to Egypt, and was increased by the arrival of numerous refugees from Turkey; in some cases it was found necessary to examine bacteriologically every passenger arriving on crowded ships. Extensive and very successful experiments have been made at Tor with the serum treatment of bacillary dysentery, and the Government has granted a sum of money to the Quarantine Council for the preparation of tis serum. During 1912 the Sudan was again free from serious epidemics, and a considerable amount of excellent work has been carried out in regard to combating of sleeping sickness.

VIKING SURGERY.

PROFESSOR FINNUR JONSSON, of the University of Copenhagen, has lately published a paper[1] in which he shows that surgery was practised in Scandinavia even in the Stone Age, for skulls have been found with circular holes, the margins of which present bony changes clearly indicating that the patient had survived the operation. Presumably trephining was part of a religious rite; at all events it must have been performed with considerable skill and neatness. Skeletal remains found in Denmark show such conditions as fracture of the fossa olecrani, patent sutura frontalis mediana, and arthritis deformans.

[1] *Medicinsk-Historiske Smaaskrifter.* Ved Vilhelm Maar. København: Vilhelm Trydes Forlag. 1912.

While myositis ossificans appears to have been extraordinarily common, dental caries was very rare in the Stone Age. At a much later date "first aid" was practised by surgeons, who, after the battle of Lyrskovshede in 1043, were so overwhelmed by work that King Magnus the Good selected twelve new surgeons from among his soldiers by feeling the palms of their hands. The successful candidates were those whose palms were the softest. Though they had never practised surgery before, they acquired a skill in their new craft, which in several cases was handed down to their descendants. Among the most famous surgeons of his day was the chieftain Hrafn Sveinbjörnsson, who died in 1213, and who operated on one of his men for vesical calculus. This had caused retention of urine, and the patient, who was at death's door, had swollen to the dimensions of an ox. After five *pater nosters* had been sung, Hrafn palpated the calculus till it escaped into the penis, where it became impacted. He now ligatured the penis above and below the calculus, cut down on it, and removed it. The wound was dressed with oil and the patient recovered. Such rational treatment does not appear always to have been meted out to sufferers from calculus, and it is probable that the attitude of the old Scandinavian physician to surgical diseases resembled that of his mediaeval successors. He treated calculus of the bladder by feeding the patient with the excreta of a chicken which had lived exclusively on wine and ivy for nine days. The surgical instrument most often mentioned in the Sagas is a pair of pincers used to extract arrows and other foreign bodies after a battle. Judging by one specimen preserved in a museum in Christiania, this instrument may well have served the blacksmith in times of peace, for its dimensions are heroic. But there were also heroes in those days, and at the battle of Stiklestad in 1030 one Tormod Kolbruneskjald was wounded in the breast by a barbed arrow. A skilled female attendant could not withdraw it, even with the pincers. Then Tormod pulled it out himself, and when he saw red and white fibres of his heart on it he exclaimed, "At least the roots of my heart are fat!" In another Saga the tale is told of one, Snorre Tordbrandsson, who, after a battle, sat at meat with his namesake Snorre the Good, a famous surgeon. The latter noticed that his guest was slow in eating his milk and cheese, and on examining his neck, found an arrow sticking in it and reaching to the base of the tongue. The pincers were applied, and this trifling obstruction to deglutition having been removed, the interrupted meal was satisfactorily concluded. No dainty carpet knight this! "Bone-setting" was also practised by the Vikings, and it is told how a wrist was dislocated, and three men, presumably manipulating the joint simultaneously, could not better matters. This seems most credible. A saint was now called in who sprinkled the joint with holy water from a consecrated well. Three days later some one seized the patient's hand firmly, a grating sound was heard, and the dislocation was found to be reduced. The bone-setter's achievement was doubtless attributed to the efficacy of sanctified hydrotherapy. Faulty union of a fracture was sometimes dealt with summarily, and a Saga relates how a patient was dissatisfied with the deformity following fracture of his leg. Though the bone had set, he instructed his attendants how to break it and set it again, the result being almost perfect, leaving but a slight limp on walking. It is conceivable that in that hardy age anaesthetics would have been scorned as the refuge of the effeminate, and have become a drug on the market.

INDUSTRIAL DISEASES.

THE Report of the Departmental Committee on Compensation for Industrial Diseases,[1] which has just been issued, is an important document, and as such deserves attention. The Committee had a number of diseases under consideration. It eventually recommended that some of them should be added to the schedule of industrial diseases, and the Home Secretary, under the powers conferred on him by Section 8, subsection 6, of the Workmen's Compensation Act, 1906, has made an Order in respect of the recommendations of the Committee. The evidence before the Committee led it to recommend an alteration with regard to nystagmus. Hitherto the word "nystagmus" stood alone in the first column of the schedule and the word "mining" in the second column. Now the word "nystagmus" is replaced by "the disease known as miners' nystagmus, whether occurring in miners or others and whether the symptoms of oscillation of the eyeballs be present or not." The word "mining" remains in the second column, and this will retain to a miner suffering from nystagmus the benefit of the presumption that it was caused by his occupation. The Order also meets the case of workmen not engaged in mining who may possibly contract the disease, but with the difference that in the case of non-miners the burden rests on them to prove that it is due to the nature of their employment. The Committee came to the conclusion that the symptom nystagmus, that is oscillation of the eyeballs, though easily found in many cases, ought not to be taken always as a conclusive test either of the presence or absence of a disease of which it is but one symptom. No doubt this symptom appears some time or other during the disease in all cases, but it may be accompanied by, or even replaced by, clonic spasm of the muscles of the eyelids. The Order provides also that a person suffering from writer's cramp shall be entitled to compensation for a period of not more than twelve months. The Committee came to the conclusion that writer's cramp is an occupational disease specific to the employment of writing, although one which is not very prevalent. In diagnosing this disease it is not enough to accept an allegation of pain alone; the subject should be required to write for half an hour, when the important objective sign of involuntary contraction—that is, cramp—must be seen. With this will also be observed definite faults in the writing. As the disorder incapacitates only from writing, the twelve months' rest is considered sufficient for either cure or to show the necessity for a change of occupation. The term "writer's cramp" is therefore added to the first column of the schedule, the second column being left blank. The onus of proof is thus on the applicant for compensation; he must show that the disease is due to the employment. Cow-pox, which affects milch cattle on the udder and may infect man through abrasions of the fingers during milking, was also considered by the Committee, which came to the conclusion that there was no doubt as to the occupational character of the disease, but that the disability does not usually extend beyond ten days. The cases in comparison with the number of persons employed in the agricultural industry are few, and as many are hired by the half-year they are not likely to lose their employment or suffer loss through a few days' disablement. For these reasons the disease has not been scheduled. Dupuytren's contraction was brought under the notice of the Factory Department in the belief that there was evidence which would support the view that the disease was occupational to certain lace makers. An extensive inquiry was made and the conclusion arrived at was that a connexion between an employment and the disorder was not established, consequently the Committee recommended that Dupuytren's contraction should not be scheduled. The report is very interesting and shows that a great deal of care and close attention is given by the Home Office to matters connected with occupational diseases. This Committee has done its work very thoroughly.

[1] Cd. 6956. To be obtained from Wyman and Sons, Fetter Lane, London, E.C.; H.M. Stationery Office, 23, Forth Street, Edinburgh; and E. Ponsonby, 116, Grafton Street, Dublin. Price 1½d.

A PSYCHO-PHYSIOLOGICAL STUDY OF TYPE-WRITING.

WE remember a time when a leading physician caused serious offence to a patient by sending her what she took to be a printed letter. This was in the early days of typewriting. Now the click of the typewriter is heard everywhere, and to those who have much correspondence or who write books and papers the machine has become a necessity of existence. Although the average of skill among typists is probably higher than it is among pianists, there are probably greater variations among performers on the typewriter. In a note presented to the Paris Académie des Sciences on June 2nd, an abstract of which appears in the *Semaine Médicale* of July 9th, M. J. N. Lahy stated that he had made an investigation of the work of typists in order to determine the psycho-physiological signs which mark superiority in execution. Three qualities are necessary for good typists—rapidity, accuracy, and taste. Leaving taste out of account as being less important, M. Lahy classified his subjects according to rapidity and accuracy. He made them copy a text of 1,702 signs which was afterwards submitted to the head of a typewriting service and several professional typists, strangers to such researches. Then measurements were made as to memory for figures and phrases, attention, and some superior processes of the intelligence—imagination, abstraction, judgement, and reasoning, by means of appropriate tests. Tactile sensibility was tested by means of the aesthetic compass, muscular sensibility by means of the myoesthesiometer, the times of auditory reaction with d'Arsonval's chronometer, the dynamometric force with Régnier's instrument. The object of this last experiment was less to determine the muscular force of the subject than the relation between the strength of the right hand and that of the left, for the purpose of establishing a muscular equilibrium which seems to be essential to good typewriting. Notwithstanding the parallelism established between the results obtained in men and in women, M. Lahy found that these results could not be compared in detail. He observed between the two sexes psycho-physiological differences which are expressed by differences of value observed in the same reactions. For this reason he separated his subjects into two groups and afterwards compared the two series of results. From his experiments he drew the following conclusions: Abstraction, judgement, and imagination seem to play no part in the superiority of typists, although M. Lahy found them in all his subjects. Superiority results from a totality of points variable for each individual, but represented to a certain extent in each in whatever way they may be combined. In general terms the points observed constantly in good typists are: A good memory for "concrete phrases" which we take to mean dictated sentences; a tendency to muscular equivalence of the two hands; a delicate tactile and muscular sensibility and sustained attention. These points, which are slightly or not at all marked in bad typists, vary in degree in others from the middling to the first rate. One of the most curious results of the experiments has been to show in all the good subjects the relative slowness of the times of auditory reaction. This suggests that a relatively slow but well adapted action is preferable to a rapid and imperfectly co ordinated action. Therefore, after experiments made on a large number of functions M. Lahy has succeeded in determining those which characterize superiority in the profession studied. By examining the subjects on these points alone it becomes possible to determine before a course of instruction is entered upon the eventual value of a typist. We venture to suggest that M. Lahy should next turn his attention to medicine (observation, percussion, auscultation, etc.) and surgery (delicacy of touch, deftness of manipulation, etc.) and work out by a series of experiments the "eventual value" of candidates for the medical profession. If this could be successfully done the unfit could be eliminated and much waste of time and money prevented.

MEDICAL TERMS IN THE NEW ENGLISH DICTIONARY.[1]

THE latest instalment of the *New English Dictionary* is a single part, the work of Dr. Bradley. The alphabetic rubrics run from *Several* to *Shaster*. It contains comparatively few medical words proper; indeed, even a purely medical dictionary, such as Gould's, has very few entries between *Sev* and *Shas*. There is *sevum*, a non-naturalized word, meaning suet as used in pharmacy; Gould's dictionary has *sevum* and also *seviparous* (fat-producing), but the *New English Dictionary* omits the latter, probably as being too technical. Then there is *sextan*, the designation of a fever the paroxysms of which recur every fifth day, or, according to the old reckoning, every sixth day. There is *sextuplets*, which Dr. Bradley defines as "six children born at one birth," and *sextuplet*, which Gould calls "one of six offspring of a single gestation." The latter lexicographer gives a place to *sextipara* (a woman in labour for the sixth time), but Dr. Bradley omits the word. These are some of the differences which one would expect to meet in a general as compared with a special dictionary. Other medical terms are *sewer-gas*, *shaking palsy*, and *share-bone*, which both the works give. *Share-bone* is a very interesting word. It means, of course, the os pubis, for the word *share* itself had the signification, now obsolete, of the division or fork of the body (the pubic region). To share a thing is to divide it, so the *share* part of the body was known where the trunk divided into two lower limbs, and as the os pubis was situated there it was termed the *share-bone*. Similarly the *share artery* is the old name for the pubic artery. Apart, however, from these medical terms, the *New English Dictionary*, in this, as in preceding sections, is worthy of all praise for the faithful way in which it records and explains all ordinary words which have medical uses; it is hardly possible to catch it tripping in this respect. Take, for instance, the word *severe:* When employed regarding an attack of illness or disease, it means "attended with a maximum of pain or distress"; and five illustrative quotations are given of this use, including the following from Allbutt's *System of Medicine:* "In severe cases of eczema there may be some prodromal symptoms." So also under *severely* and *severity*. Then again there is *shabby*, as applied to the weak pulse; the *Dictionary* registers this use of the word, and gives an illustrative quotation from this JOURNAL (from the number for January 13th, 1906)—"a rapid shabby pulse." About this word *shabby* it is interesting to find Dr. Johnson writing in his *Dictionary*, "a word that has crept into conversation and low writing, but ought not to be admitted into the language." So, too, with *shallow*, in reference to respiration; it is defined as "slight, diaphragmatic." Under *shadow*, not a suggestively medical term by any means, we find the meaning, "the appearance of degenerate corpuscles, bacilli, etc., faintly visible under the microscope"; *shadow-photograph*, the Roentgen ray picture, is not forgotten; and *Land of the Shadow of Death*, in one of its modern uses, is said to be "a rhetorical name for a tract of Western Africa in which the mortality among the white inhabitants is very great." *Shank*, as applied to the stylet of a trocar is included, but for once we miss any reference to the *shanks* of the midwifery forceps, although we must own that Dr. Bradley gives us the shanks of a pair of scissors, which are almost identical. Finally, under the special combinations and collocations of *sharp* there is given the *sharp artery*

[1] *A New English Dictionary on Historical Principles.* Several—Shaster (Volume VIII). By Henry Bradley, Hon. M.A.Oxon., Ph.D. Heidelberg. Oxford: at the Clarendon Press. July 1st, 1913. (2s. 6d.—60 cents.)

(arteria aspera), meaning the windpipe. The net of the *Dictionary* is very finely meshed, and few medical (or other) terms can slip through.

A PLÉBISCITE ON STATUES.

THE *Journal des Débats* not long ago invited its readers to vote on the following question: "If a law were passed limiting the number of statues in Paris to twenty, which, do you think, should be retained?" The number of votes recorded in this *plébiscite des statues* was 7,280. Joan of Arc was at the top of the poll by a huge majority, no fewer than 6,858 votes being cast in her favour. Next to the Maid of Orleans came Pasteur; after him came Napoleon, Victor Hugo, Gambetta, Henry IV, Louis XIV, Voltaire, Charlemagne, La Fontaine, Molière, Corneille, Gutenberg, Parmentier, the elder Dumas, Lafayette, de Musset, Jean Jacques Rousseau, Denis Papin, the rear of this bright host being brought up by Richelieu. The *Journal des Débats*, of course, can scarcely be taken as reflecting the opinion of the masses, but it doubtless fairly represents the views of the most highly educated section of the French people. Even with this limitation, the list is remarkable. The place given to Joan of Arc is due to the patriotic feeling which has found such strong and general expression in the last few years. The high place assigned to Pasteur is significant of the keen appreciation of the practical value of scientific work which is characteristic of the French mind. The names of Denis Papin and Parmentier are further illustrations of this. Denis Papin, who was born at Blois in 1647, was the son of a physician, and himself graduated in medicine at the University of Angers in 1669. Turning his attention to physics, he invented the condensing pump, and the "steam digester or engine for softening bones" which bears his name. He was one of the inventors of the steam engine. He died in London in 1712, and, like so many inventors, in obscurity. Antoine Auguste Parmentier (1737–1813) did much in the eighteenth century to popularize the use of the potato as an article of diet in France. Gutenberg, again, was the inventor of printing. The other names, with the exception of Gambetta and Lafayette, who were mere politicians, and of Louis XIV, whose sole title to greatness is the reflected glory of the great men who adorned his reign, are all those of men well worthy of commemoration. It is noteworthy that, with the exception of Charlemagne, Henry IV, and Richelieu, they were all men of letters. Further with, the exception of Dumas père, they are all classics. What would be the result of such a plébiscite in this country? We have seen lists of great men in which the name of Lister did not appear, and worse still academic persons who may be presumed to have some tincture of education have protested with the contempt of ignorance against its inclusion in other lists. We hazard the conjecture that of twenty men selected to be the subjects of such immortality as the sculptor's chisel can confer, at least one-half would be politicians and most of the rest would be soldiers or sailors. One or two might be religious "leaders" and it would be scarcely decent not to reserve a niche for Shakespeare in the national Valhalla. But while we think it probable that literature would be poorly represented, we regard it as almost certain that science in general and medicine in particular would be left out in the cold.

GRANTS TO UNIVERSITIES AND UNIVERSITY COLLEGES.

Two volumes[1] containing reports for the year 1911–12 from those universities and university colleges in Great Britain which are in receipt of a grant from the Board of Education have been issued. The first volume contains the reports from the universities and university colleges in England outside London. The second contains the reports from the University of London, the University of Wales, and Dundee University College. Prefixed to the first volume is a report to the Crown from the Board of Education, in which the work of the year is reviewed. The total amount of the grant for university colleges (and universities) in Great Britain in the financial year was £150,000, and for the colleges in Wales which receive grants £25,500. A paragraph is devoted to the report of the Royal Commission on University Education in London, and the Board of Education states that there appears to be a general consensus of opinion that the present organization is unsuitable for the manifold purposes which the university of the metropolis must serve. The hope is expressed that "the recommendations of the Commission will receive the deliberate consideration of all who are interested, that they will help towards a clearer understanding of the principles which should guide university organization as well as of the difficulties involved, and that all the various parties concerned will co-operate whole-heartedly in the effort to establish a seat of learning which will have the power, as it has the wish, to offer the best teaching to all who are fit to profit by it, irrespective of their wealth, their antecedents, or their future occupations." In another part of the report the advantages and disadvantages of the so-called "sandwich system" of education for the engineering profession are considered. In the case of medical education the problem is stated to be even more acute than in engineering, "because of the growing length of the whole curriculum and the pressure of the rapidly developing sciences which are ancillary to medicine and surgery, and which tend to encroach upon the time available for the study of pure physics, chemistry, and biology." As to what is the proper method to follow the Board at present keeps an open mind, but holds that it is not the aim of a university to produce a finished medical practitioner, and that the multiplication of university departments, "though it allows of, and indeed compels, a more thorough treatment of each branch, is also liable to encourage the student to specialize too early, if not during his undergraduate course, then at the outset of his professional career." Another evil of the multiplication of courses which is pointed out is that it causes a conflict of studies and over-pressure on the time table. Statistics are given as to the finances and number of students of the ten London medical schools now in receipt of a grant from the Board. This total includes the London School of Tropical Medicine; of the remaining nine schools, four—the London Hospital, the London School of Medicine for Women, St. Mary's Hospital, and St. Thomas's Hospital—are "complete schools." The other five are "final schools," and in this number are included King's College Hospital and University College Hospital Medical Schools. The income of the nine schools increased by over £6,000, and their expenditure by nearly £4,500 as compared with the previous year. The increase in income would have become a decrease of £1,200 had it not been for the grants from the Board of Education, which in 1911–12 amounted to £11,200, as compared with £3,900 for the previous year. The Board expresses the gratification with which it observes that some of the medical schools have made further reductions in the amounts expended out of general income on scholarships and remission fees. The statistics of the number of students in the medical schools in London are by no means clear, and the paragraph devoted to the subject in the introductory report does not remove the obscurity. The number of full-time degree students is given as 682, which is stated to be an increase of 27 as compared with the previous year. The number of full-time students preparing for a diploma in medicine and surgery is given as 446, a decrease of 100, but this diminution is said to be

[1] H.M. Stationery Office, vol. i [Cd. 7008], price 2s.; vol. ii [Cd. 7009], price 1s. 10d.

apparent, rather than real, being due partly to the transfer of preliminary and intermediate students from Charing Cross Hospital Medical School to King's College, and partly to a more accurate classification of full-time and part-time students.

DEMOCRACY AND VACCINATION.

OUR Sydney correspondent gives an account of an outbreak of small-pox in that city which though mild in type has caused something like a panic among the inhabitants. It is not surprising that such an outbreak should have occurred, as vaccination is not compulsory and has been largely neglected in New South Wales and other parts of the Commonwealth, not so much, as we gather from the *Australian Medical Journal* of July 19th, from any real hostility on the part of the people as from mere apathy. The warnings of the medical profession have passed unheeded because the danger seemed so remote as to be negligible. Now thousands have rushed to be vaccinated, and efforts are being made by the New South Wales Branch of the British Medical Association to induce the Government to make vaccination compulsory. The attitude of the Government as represented by Mr. Holman, the Premier, is sympathetic but cautious. In the meantime the Federal quarantine authorities have proclaimed Sydney to be a quarantined district. The effect of this proclamation is that any person entering or leaving the quarantined area must produce a certificate of having been successfully vaccinated within the previous five years. A person so journeying must report himself for quarantine inspection under a penalty of £50. How necessary this action was is shown by the fact that the presence of small-pox in Sydney was causing a heavy commercial loss to that city itself and a serious interference with its export trade. The gravity of a situation which but for the prompt action of the Federal Government might have grown into a tragedy has been lightened by the comic relief supplied by Mr. Will Crooks, the Labour member for Woolwich, Mr. A. W. Black, Liberal member for Biggleswade, and Mr. Edgar Jones, Liberal member for Merthyr Tydfil. These stalwarts were unvaccinated, and their democratic feelings seem to have received a severe shock when, on making demand of the Commonwealth authorities whether it was imperative that they should submit to the "Jennerian rite," they were informed that if they did not they would be placed in quarantine at Sydney. At first they took up the attitude of Ajax defying the lightning, but realizing that a really democratic government is, as Wellington said, the strongest of all governments, and in matters of public health, in particular, has small respect for persons who place themselves in opposition to the law, finally accepted the situation with the best grace they could. They are members of the Empire Parliamentary Association visiting Australia at the invitation of the Australian branch of that Association. Had they persisted in their attempt to override the authority of the Australian Government, they would have had to come home in rather inglorious fashion with only the record of a futile journey to present to the Association which they represent. We hope the incident will teach them the lesson that the will of a self-governing people has to be obeyed even by democratic Members of Parliament who think they know better.

PELLAGRA.

AT a meeting of the Pellagra Investigation Committee, Dr. Dawson Williams in the chair, held on August 22nd, 1913, Dr. Sambon explained to the Committee the work he had done lately in regard to pellagra, and stated that he was on the eve of starting for the United States, on his way to the West Indies to investigate the prevalence of the disease in these islands. It is well known that Dr. Sambon has contested the truth of the maize theory of the etiology of pellagra, and the fact that the disease has declared itself in the British Isles would seem, without any other epidemiological or experimental inquiry, to prove that maize-eating cannot at least be the only cause of pellagra, seeing that maize is not consumed, or but sparingly consumed, in Britain. Some 40 to 50 cases are believed to exist in England and Scotland, of which number over 20 have been actually seen and diagnosed by Dr. Sambon. The first case known in England dates only from October, 1912, so that as in ten months a considerable number of cases have been found, it is possible, if not probable, that when medical men become better acquainted with the signs and symptoms of this disease, which may be new in Britain, many more cases will be brought to light. Dr. Sambon is going by invitation to the United States of America to confer with experts in pellagra, for in that country, where within the past few years pellagra has been proved to be widely prevalent, some reports place the number of pellagrins as high as 50,000. The presence of pellagra in a country throws a great strain upon the lunatic asylums, for many pellagrins find their way thither as the disease advances. The Committee conveyed a cordial vote of thanks to Mr. H. S. Wellcome for the help he had given in the past, when he generously came forward and paid the expenses of the Second Field Commission, consisting of Dr. Sambon, Dr. Chalmers and others, who visited Southern Europe in 1912, and brought home a wealth of information concerning the epidemiology of pellagra. Mr. Wellcome has again shown his interest in this scientific investigation by placing Dr. Sambon's services at the disposal of the Committee.

THE WASSERMANN REACTION IN CHILDREN.

A DISCUSSION on this subject was recently held at a meeting of an American society in New York. Dr. Emmett Holt related his experience at some length.[1] He found that the reaction not only affected the detection of syphilis in doubtful cases, but excluded that disease in many instances where it was formerly suspected. Children, where the reaction was positive, should receive the benefit of specific treatment. It must not be forgotten, Dr. Holt reminds us, that, like all laboratory tests, the Wassermann reaction is not infallible. Positive reactions may be obtained in certain cases of scarlet fever, and in infection with the trypanosomes, but neither of these conditions is likely to be taken for syphilis. Errors on the positive side were most frequent, children being occasionally pronounced syphilitic when free from the taint. Dr. Holt reported a series of observations carried on in an infant's hospital. The Noguchi modification of the Wassermann reaction had been employed because it required much less blood than the older test. All the tests had been made at the Rockefeller Institute under the supervision of Dr. Noguchi; 34 cases of hereditary syphilis admitted into hospital for treatment had come under observation. In 31 blood tests were made, and all but one gave a positive reaction; in the exceptional case the infant had undergone inunctions of mercury for three months. It was further noted that mercurial treatment did not seem to affect the reaction unless it had been continued for a considerable time with regularity. The positive reaction in nine of these cases, some of which had been treated from birth, showed how incomplete and uncertain was the "cure" of syphilis by mercury and potassium iodide. Of 178 tests made on hospital subjects showing no definite signs of syphilis positive reactions were obtained in eleven only; five of these, however, proved on further investigation to be hardly without doubt syphilitic. Two of the remaining cases were doubtfully tainted. The great proportion of congenital deformities had no relation to syphilis, since not a single positive reaction was obtained in a series of 56 consecutive

[1] The Wassermann Reaction in Various Conditions in Children, *American Journal of Obstetrics*, June, 1913, page 1228.

cases. Out of 62 infants suffering from malnutrition, only 5 gave a positive reaction, and were included in the group of 178 mentioned above. Of the remaining 57 ill-nourished subjects nearly one-third had considerable enlargement of the liver or spleen; in several both organs were involved. These cases, Dr. Holt assures us, were selected from a much larger number as most likely to be syphilitic, so he could hardly regard syphilis as a common cause of marasmus, at least in the infants admitted to his hospital. As the error is almost invariably on the positive side, errors of technique must always be suspected when a large percentage of positive reactions is registered among infants with marasmus in hospitals and public institutions of other kinds. Mere splenic and hepatic swellings in such subjects are more often seen where rachitis is present. The only glandular swellings that strongly suggested syphilis were those that affected the epitrochlear glands without any peripheral lesion to explain that local condition.

EPIDEMIC DIARRHOEA.

THE Local Government Board on July 25th issued a circular letter to sanitary authorities in England and Wales inviting them to take all practicable measures for the prevention of infectious diseases, including epidemic diarrhoea, among infants, and to promote hygienic conditions in the food of infants. The value of systematic visitation of homes soon after the birth of a child is emphasized and the importance of adopting the Notification of Births Act, 1907, with this end in view is insisted upon, since under it the medical officer of health receives information as to the birth of a child within thirty-six hours. The Act, it is stated, is now in force in 390 districts, with a total population exceeding 20,000,000, or about 56 per cent. of the total population of England and Wales. The Board intimated that it is of opinion that under the Public Health Act, 1875, local authorities might properly employ and pay women to give advice with the object of preventing the infectious diseases of infancy, including those arising in connexion with improper feeding. Where there is not sufficient work to employ the whole time of a woman in this capacity the office may be joined with that of assistant inspector of nuisances, tuberculosis visitor, or school nurse. It is added that care should also be taken to utilize to the full all voluntary work in this direction, and to co-ordinate it under the medical officer of health. The frequent removal of house, stable, and street refuse is recommended, and the abolition, wherever possible, of privies and other closets of the conservancy system. A supplement in continuation of the report of the medical officer to the Local Government Board for 1912–13 has been issued containing a second report[1] on mortality during the first five years of life, dealing with statistics of 212 towns and 29 metropolitan boroughs during the four years 1907–10 (grouped) and the year 1911.

THE CALCUTTA SCHOOL OF TROPICAL MEDICINE.

THE *Indian Medical Gazette* for August announces that the scheme for the establishment of a School of Tropical Medicine in Calcutta is now so far advanced towards fulfilment that there is every reason to hope that it will be opened in the autumn of 1914. The proposal to establish such a school was originally made by the Medical Section of the Asiatic Society of Bengal; it was intended as a memorial to King Edward VII. It was, however, rejected in favour of other schemes which, we gather, have so far come to nothing. To the credit of the Government of India be it said that it at once saw the advantages of the proposal, though at first it appears to have done little to carry it fully into effect. It suggested tentative arrangements for post-graduate teaching at the Calcutta Medical College Hospital without addition to the staff or laboratories. After some negotiations it was decided to build a laboratory on a site adjoining the college and to provide additional research rooms for the Tropical School. It was not, however, till well on in 1912 that the sanction of the Secretary of State for India was obtained. In the meantime a larger site than that for which the original plans were drawn up was sanctioned by the Government of India. This made a reconsideration of the designs necessary. Thanks to the Government of India which gave an extra lakh of rupees on the advice of Sir Pardey Lukis (says our contemporary), the plans now adopted provide for a two-storied building with 220 ft. of north light facing Colootolah Street, with foundations to carry a third story when it is required. A library and reading room, as well as a practical class room, will be provided for the post-graduates, while the lecture theatre will be fitted for the use of the epidiascope, microscope projection apparatus, and a cinematograph for films illustrating such subjects as malarial prophylaxis and the movements of trypanosomes in the blood of an animal. Further, a number of separate research rooms for different branches of medical science will be provided, in addition to a fine general pathology laboratory in which the post-graduate students can be helped in working out clinical cases and learning methods of research. But the equipment of the school with an adequate staff remains to be sanctioned. It is understood that several whole-time officers who have already won a reputation in scientific research will be appointed. It is pointed out that additional workers specially qualified to carry out investigations in various branches of tropical medicine will be required if the vast material in the Medical College Hospital and other large institutions in Calcutta is to be fully utilized. Already very valuable work on cholera, epidemic dropsy, dysentery, and other diseases has been done by a small number of workers in Calcutta. What is now wanted is money. The *Indian Medical Gazette* asks for substantial endowments of three or four lakhs for several additional research chairs, or annual subscriptions of 20,000 rupees for each. A scheme for the establishment of a school on the lines of that at Calcutta at Parel in Bombay has also been put forward. As to the advantages of this there appears to be some difference of opinion. We can express no opinion on the subject, but we welcome the recognition of the importance of tropical medicine by the Government of India.

EXPERIMENTAL TRANSMISSION OF VERRUGA.

ACCORDING to *Science* of August 15th, Mr. Charles H. T. Townsend, who was some time ago specially charged by the Peruvian Government with the investigation of the insect transmission of verruga, injected a dog with triturated females of *Phlebotomus* on July 11th. On July 17th an unmistakable verruga eruption appeared. The gnats used for the injection were caught on the night of July 9th in Verrugas Canyon, well known as a hot-bed of the disease. This is said to be the first experimental proof of the transmission of verruga by insects. The details of the experiment will be published shortly. Further experiments on transmission in the laboratory will be pursued at once, both by injections and by making the gnats bite. Verruga peruana or Peruvian wart is a disease which occurs in certain narrow valleys on the Andes, between the ninth and sixteenth parallels of latitude, and at an elevation of 3,000 ft. to 10,000 ft. The disease attacks domestic animals as well as human beings living in the endemic district. The characteristic lesion is a granuloma identical in appearance with that of yaws. It is accompanied by rheumatic pains and by fever, which may last for weeks or even months. A well known case is on record in which a medical student named Carrion inoculated himself experimentally with blood from a Peruvian wart. The bold investigator died as the result of his experiment.

[1] Cd. 6909. price 2s.

Australia.

[FROM OUR SPECIAL CORRESPONDENT.]

AN EPIDEMIC OF SMALL-POX IN SYDNEY.

OUR correspondent in Sydney, writing on July 15th, states that an epidemic of small-pox of a very mild type prevailed in Sydney, and that there were then 65 patients, 112 convalescents, and 23 contacts at the quarantine station. He continues:

The suspicions of the Public Health Department were aroused about the end of May, when the proprietor of a clothing factory in a populous suburb of Sydney reported that a number of his employees were absent from work in consequence of a "rash," and he requested that an investigation should be made as his business was greatly disturbed. On the same day application was made at the hospital admission dépôt for treatment in the case of a girl who was employed at this factory. The patient was removed to the Coast Hospital, and the disease diagnosed as varicella of a severe type. Dr. Armstrong visited about fifteen of the employees at the factory, and found them to be suffering from what appeared to be varicella. The case at the Coast Hospital aroused suspicion, and a full investigation of all the circumstances was made by the medical officers of the Department of all the cases which could be traced, amounting to some sixty in all. On June 24th the facts were reported to the Acting Premier, who directed that the assistance of Dr. Reid, the chief quarantine officer for New South Wales, and Dr. Walter Hull should be sought to decide whether the disease were varicella or variola. The Board of Health on that same day gave instructions that vaccination was to be offered to all contacts, and that medical men were to be invited to notify to the Department any severe cases of what might be considered to be varicella. As a result of an exhaustive inquiry into the circumstances of all the cases which could be traced, the Board was informed that the outbreak was one of varicella, but that this conclusion had been reached with some diffidence owing to the unusual type of case. The medical men above mentioned advised that the precautionary measures of vaccination and isolation at the Coast Hospital should be continued. This recommendation was adopted, and the patients supposed to be suffering from varicella were vaccinated. This test gave negative results, and the President of the Board of Health, acting on his own observations and on the advice of his medical officers, came to the conclusion that the disease was really small-pox, but of an extremely mild type. It appears from the history available that the first case occurred about April 12th, having been brought by one of the crew of a steamer from Vancouver, where a mild outbreak of small-pox had been reported.

The mildness of the epidemic can be seen from the fact that although the first case occurred as far back as April 12th, only 60 cases could be traced up to the beginning of July, and the majority have been so slight that no medical man has been sought, and this in a practically unvaccinated community. Since that time the cases have all presented the same mild type of symptoms. The call of the Board of Health to all citizens to undergo vaccination has resulted in an enormous demand for this procedure, and free vaccination dépôts in different parts of the city have been opened. It was stated at first that the Board of Health had a sufficient supply of vaccine lymph for all demands, but owing, it is stated, to the unexpected response to the call to vaccination, the supply ran short, and the request of a large number of medical practitioners for lymph to enable them to vaccinate their private patients was refused. Moreover, the supply of lymph to the hospitals, both public and private, was for a time suspended, and an effort was made to drive all persons to the public dépôts. To add to the difficulties of the situation, Sydney was declared a quarantined district by the Federal quarantine authorities, and persons travelling from one State of the Commonwealth to another were required to produce a certificate of having been recently vaccinated. Now, however, the situation has been relieved to some extent, for the Federal authorities have undertaken to supply the medical practitioners with lymph daily. Very strong feeling has been aroused against the Government and the Board of Health, but of course in a time of panic all sorts of stories are circulated, the truth of which is not borne out by subsequent investigation. There is not entire unanimity in the minds of the profession in general that the epidemic is one of real small-pox; but it is generally admitted that it is a good thing for the community to be vaccinated, owing to the great risk which we run of having virulent small-pox from the East introduced by a patient still in the incubation period. The profession agreed also that the isolation of patients and the quarantining of contacts is the right course to pursue in the presence of the epidemic. But exception has been taken to the action of the authorities in withholding lymph from the general practitioners, and in attempting to drive all persons, whether they are able and willing to pay for vaccination or not, to the free dépôts, with the consequent herding together of large crowds, including possible patients, contacts, and healthy persons—a procedure which is calculated to spread the disease. In view of the strong socialistic tendencies of the Labour Government, and the aim of that party to nationalize the hospitals and the profession, it is believed in some quarters, at any rate, that the present epidemic is being used for the purpose of introducing the thin edge of the wedge. Whether this has been directly aimed at cannot be proved, but the general result of the course adopted must be recognized as supporting the policy of the Socialists.

Although vaccination is compulsory in some of the other States, it is not in New South Wales, and the present epidemic has been made use of as a ground for urging the introduction of legislation to make vaccination compulsory in this State. An influential deputation, introduced by Dr. Richard Arthur, M.L.A., waited on the Premier to advocate regular and compulsory vaccination in normal times as against present methods. The deputation included the President, the Vice-President, and Secretary of the New South Wales Branch of the British Medical Association, representatives of the Chamber of Manufactures, the Chamber of Commerce, and various shipping interests of Sydney. Dr. Arthur, in introducing the deputation, said that it did not wish to suggest that the Government was not doing all it could to check the epidemic, but the deputation desired to urge that something of a more permanent nature should be done to obviate a panic in the future. Owing to the increasing rapidity in transit from the East, the risk of infection in Australia was increasing every year. This was one of the few civilized communities in the world unprotected in this regard, and the solution of the problem of the prevention or mitigation of the disease would lie in the enactment of a compulsory Act on the lines of those of Great Britain, Germany, Victoria, and other communities. Other speakers emphasized these same points, and the Premier promised to consider the matter, in conjunction with his medical advisers. He admitted that the arguments used by the deputation had made a great impression on his mind, and that these statements called for the serious consideration of any Government. It will depend on the views of the Labour Caucus whether the Government will be allowed to introduce such a measure.

SCHOOL MEDICAL INSPECTION.

A new scheme of medical inspection of children attending State schools has been inaugurated in New South Wales by Dr. Willis, the recently appointed chief school medical officer. It is recognized that the present provision, though not sufficient to meet all the needs of the case, is a satisfactory beginning. The total staff comprises ten full-time medical officers, as compared with two full-time and two part-time officers who have been employed hitherto. The present staff of five nurses will probably also be increased. The work of the doctors will include the medical inspection of the children, the inspection of school buildings, lectures on hygiene and public health at the Teachers' College and Hereford House, the examination of candidates for entrance to the teaching service, and of sick teachers, investigation of outbreaks of infectious diseases at schools, and lectures to senior girls on the care of babies, personal hygiene, and hygiene in the home. Dr. Willis states that the first task which lies before the new medical officers is to find out what medical work has been done in connexion with the schools.

A commencement has been made in collecting statistics as to the number of tuberculous children in the State, with a view of starting special open-air schools for these children. Statistics are also being collected with regard to the number of mentally defective children, with a view to starting special schools for them. Beneficial results are looked for, specially from medical inspection in the country, where ophthalmia is very prevalent. It is proposed to appoint a doctor with special experience in this kind of work to travel round these districts and give the necessary treatment to the afflicted children, and then to show the parents how to continue the treatment. To ensure the attention of the parents to the advice given by the school medical inspectors, it is intended that in the metropolitan areas the nurses shall follow up neglected cases, and endeavour to persuade parents to adopt the advice given. At each inspection a certain time will be set apart for talks to the parents by the medical officers, and it is hoped that these will have the effect of securing the co-operation of the parents in carrying out the advice tendered. Attention to the teeth and the eyesight of school children are other matters which are to receive special attention at the hands of the medical school inspectors.

Canada.

MEDICAL INSPECTION OF IMMIGRANTS.

THE chief medical officer, Dr. Peter H. Bryce, acting on the authority of the Minister of the Interior of Canada, has issued instructions for the medical inspection of arriving immigrants by officers of the Interior Department. The general instructions are as follows:

1. Medical inspectors are instructed to exercise due care, when making reports, to classify cases and to give such details of symptoms as will indicate the chief characteristics of the disease reported upon.
2. Examinations must be made in the daytime, and under no circumstances in badly lighted places. In dull weather artificial light must be used, and should shine from behind the examiner. The medical inspection should be carried out as soon as possible after arrival of the vessel in port, and before passengers are identified by the agent of the port.
3. Crowding of those presenting themselves for inspection must not be permitted, and the inspector must so arrange that he has free space of 10 ft. in front, so that he can observe properly the walk of the person approaching. Except infants under one year, children in arms must be placed on the floor to show if any evidence of infantile paralysis is present, while a proper view of the eyes may be had by causing the person to look at the raised finger as he approaches.
4. The medical inspector must look especially for lameness, ataxic gait, and paralysis, spinal curvature and hunchbacks, and pigeon-breasts for evidences of disease.
5. He must further carefully examine the marks or stigmata of degeneracy, as strabismus, hare-lip, defects of the palate, defective speech, and any other abnormal developments.
6. He must also examine for evidence of rickets, as knock-knee, and for scrofulous glands of the neck, discharging ears, scabies on hands, etc.
7. Especially must he look for these several defects in all undersized persons, as it is in persons from the slums that these defects are most commonly present.
8. Having had the hat removed, he must examine the scalp for evidence of favus, tinea, pediculi, etc., and in all cases of baldness, where the scalp is in any way abnormal, hold them for special examination.
9. The eyes must be carefully examined by everting the lids and examining the mucous membrane for trachoma or chronic conjunctivitis, characterized by firm, persistent granulations, general or localized, often associated with a muco-purulent discharge, eroded mucous membrane with scar tissue in patches or bands, roughened cornea and pannus, trichiasis and entropion. The mild cases of conjunctivitis and blepharitis, due to smoke and dust of the voyage, should be distinguished from the contagious forms of disease.
10. He shall in all cases, before allowing the vessel to proceed, receive from the ship-master and surgeon a signed statement, giving the facts regarding diseases or accidents, if any, which have occurred or been present in patients during the voyage, and shall examine the vessel with a view to reporting to the Department any lack of structural or sanitary conveniences likely to promote the spread of disease amongst passengers.

Persons suspected by the medical inspector to be suffering from any disease or condition dealt with under the Act, or referred to him by the immigration officer of any foreign country, or by the ship's officer, are to be subjected to special examination, and in any doubtful case the person is to be detained and sent to the Detention Hospital. When the nature of the case has been ascertained the superintendent of the Detention Hospital must make a written report to the immigration agent of the port for communication to the transportation company. If the physical condition is such as is likely to make the person a public charge or such as cannot be cured except by long treatment, the report must recommend that the person be rejected.

The instructions contain a section dealing specifically with certain diseases including heart disease, varicose veins, tuberculosis, bronchitis, defective vision, conjunctivitis and trachoma, alopecia, ringworm, favus, eczema, scabies, chicken-pox, diseases and injuries of the bones and joints, paralysis, hernia, and senility and debility.

Another section deals at length with the examination of immigrants suspected to be mentally defective, epileptics, and persons of unsound mind. Suggestions are also made with regard to the inspection of passengers and the sanitation of vessels, with special reference to overcrowding, air space, and ventilation, sanitary appliances, and the medical care of passengers.

INSANITARY HOUSING.

An address on insanitary housing, by Dr. C. A. Hodgetts, Medical Adviser to the Public Health Committee of the Commission of Conservation, Canada, has been published by the Commission. The housing conditions described as existing in Montreal, Toronto, Ontario, and some other places convey the impression that serious evils have grown up. Extracts from reports by the Secretary of the Quebec Board of Health, the Superintendent of Neglected Children in Ontario, and the Medical Officer of Health, Winnipeg, indicate the existence of much insanitary housing in three sections of the Dominion. Sixteen photographic reproductions are issued with the address, and Dr. Hodgetts's verbal description of the slums is frequently also graphic. Speaking of the "attributes" of insanitary housing, he says:

> Some of these attributes may be applied to the expensive apartment-house, which is little better than a series of packing boxes, a human storage warehouse, . . . not a slum but an unhealthy hive, an architectural monstrosity; but these are just the kind of houses that in their decadence make the worst kind of slum homes. . . . The slum, like the tentacles of the devil-fish, receives its prey within its walls, retains, and engulfs him by imperceptible yet rapid degrees.

Thousands of emigrants leave the United Kingdom yearly for Canada, and Dr. Hodgetts's description of the housing of immigrants is at once interesting and disconcerting. The newer additions to the towns and cities known as "shack towns" have been allowed to produce a new variety of slum as deadly and dangerous as any of the older products derived from ramshackle and old houses in the congested districts. Little Italys, Little Londons, and Little China-towns have sprung up devoid of the simplest modern sanitary requirements. Dr. Hodgetts's address is a striking contribution to the discussion of the housing problem in Canada, and indications are not wanting that the matter is receiving serious attention. Official publications drawing public attention to matters relating to health and hygiene are frequently issued in Canada and circulated freely among the people. Here is an object lesson for other Governments.

THE ROYAL EDWARD INSTITUTE, MONTREAL.

The third annual report of the Royal Edward Institute for the Study, Prevention, and Cure of Tuberculosis, Montreal, shows that about 550 patients were treated every month during 1912 at the dispensary. Montreal has followed the Edinburgh plan of developing the dispensary system of dealing with tuberculosis. The actual number of deaths from consumption was slightly higher than in the previous year, but it was thought probable that when the increase in population was taken into consideration it would be found that the death-rate had not increased. The total number of patients attended was 2,351; of the new patients, 565 were found to be definitely tuberculous, 816 were non-tuberculous, 259 were doubtful, and 38 refused examination. The dispensary was opened on 305 days of the year with a total of 11,903 consultations, or an average of slightly over thirty-nine a day. In the throat department 312 patients attended. The board

of management has decided to open an open-air school on the roof and verandahs of the institute.

TORONTO GENERAL HOSPITAL.

The new buildings of the Toronto General Hospital were formally opened by the Lieutenant-Governor, Sir J. M. Gibson, a short time ago. The actual cost of the buildings is stated to be about £700,000. When the plans were first drawn up in 1904 the estimated cost was £250,000. The site, which has an area of about nine acres, was bought at a cost of £121,600. The work of building was begun in November, 1910. The hospital contains 670 beds; of these, 520 are for the public ward patients, and 150 for private ward patients. The resident medical staff numbers 26, the nursing staff 176. There are many verandahs, and the hospital is well supplied with roof gardens. The number of patients treated in the hospital in 1912 was 5,705, an increase of 99 over the previous year. There was a notable decrease in the number of cases of typhoid fever. In the year 1909–10 there were 304 cases, in the following year 209, and last year 117. Of these, 42 contracted the disease outside Toronto. For the first time in the history of the hospital the nursing staff has been inoculated against typhoid fever. There was an increase of 270 in the number of cases in the surgical division, largely accounted for by the increase in the number of cases of appendicitis, from 290 in 1909-10 to 372 in 1910-11, and 523 for this year. The number of cases of enlarged tonsils and adenoids increased from 260 to 469. This increase is attributed to medical inspection of schools.

The Therapeutic Inoculation Department treated 88 cases, chiefly localized tuberculosis, erysipelas, boils and carbuncles, sycosis, gonorrhoeal arthritis, acne vulgaris, and streptococcal cellulitis. Many members of the profession throughout the province were supplied gratuitously with autogenous or other vaccines for use in hospital cases.

India.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

THE EUROPEAN DEFENCE ASSOCIATION ON THE NECESSITY OF SUPPLYING EUROPEAN DOCTORS IN ALL DISTRICTS IN INDIA.

THE recent greatly increased political power of Indians, resulting in the persistent demand for admission to a greater proportion of higher Government posts hitherto held by Europeans, has led to the formation of a strong European Defence Association, with branches all over India. This important body has addressed to the Government of India a memorial on "a question gravely affecting Europeans in the mufussil or country districts of India." It is pointed out that until recently both official and non-official Europeans have usually been able to obtain European medical officers to attend themselves and their families, but that an Order of the Secretary of State issued in 1908 stopped all further increase in the civil side of the Indian Medical Service.

The paragraphs to which reference is made are as follows:

> I have consequently decided that the time has now arrived when no further increase of the civil side of the service can be allowed, and when a strong effort should be made to reduce it by gradually extending the employment of civil medical practitioners recruited in India.
>
> When it is found impossible to obtain a man from outside the Indian Medical Service to fill a particular new civil appointment, or one which has not previously been so filled, I will not object for the present to that service being drawn upon; but the vacancy so caused must be filled from outside it—that is, no appointment must be made in succession which would involve an addition to the cadre of the Indian Medical Service.

In commenting on this the memorial observes that with the inevitable increase of specialist posts due to the advance of medical science, there has been a corresponding steady decrease in the number of district civil surgeoncies, and "the effect of the policy indicated in this Order has already been a gradual but appreciable withdrawal of European civil surgeons from mufussil districts." This process, the memorial indicates, must go on, and as, unfortunately, India does not, and cannot, attract well-qualified European practitioners except for the presidency towns, "the civil surgeoncies in the mufussil are being surrendered to civil and military assistant surgeons or to independent practitioners of secondary attainments," and "there is nothing to prevent this process continuing under the existing state of affairs until such time as the civil surgeoncies in the mufussil areas are entirely in the hands of those who, it is submitted, are, either professionally or racially, unfitted to hold them." Already two-fifths of the district civil surgeoncies are without Indian Medical Service officers, although many of them have about one million inhabitants.

The Council of the European Defence Association make it clear that it does "not approach this question from a racial standpoint in the sense of any point of antagonism between the European and Indian races, but from the universal racial standpoint as touching the most intimate and delicate side of private life. From this standpoint it is no question as between European and Indian any more than between one European race and another. It is a question of the intimate relations which must of necessity exist between a doctor and a patient, and of the sacred right and privilege which every man, and more especially every woman, seeks to exercise of being professionally attended by a qualified practitioner of his or her own race, custom, and ideas in life. To force upon European ladies, more especially in maternity cases, practitioners of secondary qualifications, or, as the case may be, practitioners of alien race and customs, is to create a position which no British Government should tolerate for one moment, and yet this is the situation which arises to-day, and which is being steadily extended, as a result of the operation of the orders passed by the Right Hon. Viscount Morley. No Government would dream of attempting to force European male doctors on Indian ladies, but, nevertheless, it has not been considered improper to adopt the reverse attitude, and to issue orders which have the effect of forcing Indian doctors on European ladies."

The last-quoted sentence sums up the situation tersely and forcibly, and it is to be hoped that the Government of India and the India Office will seriously consider an aspect of the question which seems hitherto to have received insufficient attention.

THE MEDICAL COLLEGE FOR WOMEN AT DELHI.

Her Excellency Lady Hardinge has received the following towards the establishment of a medical college for women at Delhi: Donations of 1 lakh each from H.H. the Nizam of Hyderabad, H.H. the Gaekwar of Baroda, the Jodhpur Durbar, and H.H. the Maharao of Kotah.

KING EDWARD MEMORIAL HOSPITAL AT BOMBAY.

The Bombay Corporation has under discussion a scheme for the foundation of a new hospital at Parel as a memorial to the late King Edward. The Bombay Presidency King Edward Memorial Association offers to supply money at its disposal amounting to 7 lakhs, as well as land vested in it by Government valued at 5 lakhs, if the corporation will undertake the building, equipment, and maintenance of the hospital, subject to certain conditions. The total cost of the hospital is estimated at Rs. 21,00,000, for which sum 250 beds are to be provided.

LUNACY IN THE PUNJAB.

The annual report on the Punjab Lunatic Asylum for 1912 shows that the number of inmates increased during the year, a circumstance which the Government regards as indicating a growing confidence in the methods of treatment. There was an even more striking increase in the number of recoveries, as 155 patients were discharged as cured, the average for previous years being only 87. The health of the inmates was not so good as usual, and the daily average of sick patients was 112, or 34 more than the normal for the past five years. A brief cholera epidemic which occurred during the year cannot be said to account for this general ill-health. On the other hand, the number of deaths was only 61, as against an average of 82. In consequence of the cholera epidemic, which did not cause more than four deaths, 20 special quarantine cells have been constructed. Two murders were committed by lunatics during the year, and in this connexion the superintendent of the asylum blames the inferior quality

of the attendants for the frequency of assaults by the patients. There has naturally been special difficulty with male European inmates in the absence of an European attendant, and it is satisfactory to learn that the Government has sanctioned the employment of one European and two additional Indian attendants. It is hoped to attract for the latter men of the type of retired soldiers, "who will supply that element of firmness, tempered with consideration, which the superintendent desires." As regards the etiological factors of insanity, it is stated that the use of drugs is the most common, and was present in 43 out of 134 cases. Owing to the more scientific methods of classification epilepsy is much less prominent in this return than of old.

The Segregation of Lepers.

It appears from the thirty-eighth annual report of the Mission to Lepers in India and the East that 3,537 lepers are voluntary inmates of forty asylums of the society throughout India. They belong largely to the homeless and destitute class, and their segregation must be accomplishing very much for the public safety. The society is also aiding or has some part in the work of nineteen other asylums in India. The segregation of the healthy children of lepers from their diseased parents is an outstanding feature of the society's work. Some 500 children are being thus segregated, supported, and educated. Mr. W. H. P. Anderson, for many years superintendent of the leper asylum at Chandkuri (C.P.) has been appointed permanent secretary, with an office at Hornby Road, Bombay, to represent the interests of the mission in India. The total income of the society for 1912 is given as £45,847, and of this amount £20,788 was expended in India.

Smoke in Plague Prevention.

The following official statement has been issued by the Punjab Government:

> In connexion with the method of treatment of plague during February, 1913, it may be of interest to notice the successful results that have attended the use of smoke in preventing the outbreak of the disease. The town of Sargodha in the Shahpur district has again been systematically smoked. It was done experimentally in May and June last, and the results were very encouraging. It was repeated in January and February before the onset of plague. . . . One of the most striking features in this second smoking of Sargodha is the marked appreciation of the inhabitants. The reports of the plague staff repeatedly call attention to this encouraging sign, and mention that the people gave the plague staff great aid in clearing their houses and pointing out holes themselves. In very few cases indeed were shops found shut against the measure.

The Health of Gaols in Assam.

The Chief Commissioner, in a resolution on the report on the administration of gaols in Assam, in 1912, states that a noticeable feature in the administration of the gaols of the province during the year under review was the marked decrease in the daily average strength of the jail population. There was a satisfactory decline in sickness and mortality during the year, but the ratio of sickness to admissions and the death-rate were still very heavy. The question of diet had an important bearing on the health of the prisoners, and it is satisfactory to find that the revision of the diet scale is engaging attention. The introduction of fish diet in the gaols at Tezpur and Nowgong, in lieu of dal, has been attended with satisfactory results.

Tribute to a Civil Surgeon.

At a recent meeting of the Delhi Municipal Committee the following resolution was passed:

> This committee is very sorry to hear of the transfer of Colonel Davidson, Civil Surgeon, from Delhi to Lahore, and is bound to place on record its deep sense of gratitude for the invaluable assistance rendered and sound advice given by Colonel Davidson as a member of this committee during the tenure of his office as civil surgeon. This committee also appreciates the great interest taken by Colonel Davidson in the welfare of the Delhi citizens, and in maintaining the standard of the civil dispensaries and hospitals of Delhi, which confer an inestimable boon upon the Delhi public in alleviating their sufferings.

Lady Sanitary Inspectors for Malarial Work in Madras.

Lady sanitary inspectors were added some time ago to the Special Malaria Staff in Madras. These ladies, who have to be fully trained are paid the relatively high salary of Rs. 200 a month. They visit the homes of the people, attend to the women and children, and, as in the slums of England, "bring a message of hope, strength, and education, to the houses of the poor." It was feared at first that suitable women of the class required would be impossible to obtain in India, and that the appointment of trained nurses from England would be open to the fatal objection that they would be ignorant of the language of the people they were intended to help. There was in fact difficulty in making appointments and the full cadre of six nurses has never yet been reached; but, by bringing in two experienced lady assistant surgeons, the health officer has succeeded in obtaining five. These ladies visit the houses daily, and not only tend the sick, but teach elementary sanitary rules to the women they meet, doing in this way more real good in a day than the rules and regulations of the sanitary authority in a year. They have completely overcome the suspicion of the ignorant people among whom they work, and have abolished by their work the dead wall of popular opposition which formerly met the Corporation officials whenever they attempted to introduce the simple rules of personal and household cleanliness inculcated by the Malaria Staff. As a result of the measures described above, the malaria epidemic has decreased, and the return of fever cases in the Northern Divisions is now no higher than normal. That this reduction is not due merely to the dry season, when a reduction is naturally expected, is held to be proved by the fact that the number of cases is now about the same as in Pursewalkam, while during the epidemic it was very much larger.

Strike of Pupil Nurses at Bombay.

The latest development in strikes took place recently at the Cama Hospital, Bombay, a large lying-in hospital. Thirty pupil nurses there alleged that some of the duties they were required to perform were usually performed by female scavengers, and one morning they refused to go on duty unless the rules were altered to suit them. The lady physician in charge refused any concession. The women then carried their complaint to the Honorary Secretary. He summoned the committee, and the committee has now issued a statement to the nurses entirely upholding the lady physician. They dismissed the ringleaders of the strikers, suspended another for six months, and allowed the other girls to return unconditionally if they did so at once, otherwise the whole of the pupil nurses would be dismissed. During the strike the regular qualified nursing staff of the hospital carried on the whole duties of the hospital in which the probationers ordinarily assist.

The Rangoon General Hospital.

In his annual report on the medical services in Burmah, the Inspector General of Civil Hospitals says that the Rangoon General Hospital is now very fully equipped and furnished. During the year the hospital mortuary and laboratory buildings were completed, and are now in full working order. The year under report was rather an unfortunate one for this institution. Captain Crump, the resident medical officer, had to take sick leave, and Captain Dougan, the pathologist, died from the effects of blood poisoning contracted while performing his duties.

Scotland.

[FROM OUR SPECIAL CORRESPONDENTS.]

Foreign Physicians in Scotland.

In addition to the parties of Russian and German physicians who were referred to last week as prolonging their visit to Great Britain by a tour in Scotland, another detachment of medical men attending the International Congress of Medicine was to be found as far north as Strathpeffer Spa. The doctors of this party were from France, and after partaking of luncheon in Inverness,

where they met a number of the local medical men, they proceeded to Strathpeffer, where they were welcomed by Sir George Hastings and Major Walter, of the Spa Company, and by Drs. Bruce, Duncan, Kaye, and Adam. Dr. Fortescue Fox, of London, was with the party, and at the dinner in the evening, which was given in the Highland Railway Hotel, he proposed the health of the guests, and in doing so took occasion to refer to the wealth of Great Britain in health resorts which were still unkown upon the Continent of Europe. He thought that for some invalids an invigorating and tonic climate, such as the British Isles possessed, was needed if they were to obtain good effects from their bath treatment, and he spoke highly in praise of the benefits which the north-eastern part of the Highlands of Scotland was able to confer on men advanced in years and fatigued with the life and labours of great cities. The benefits were both climatic and medicinal, for the springs were strongly sulphurous and were useful for many chronic disorders, especially for gout, rheumatism, maladies of the stomach, and for skin diseases, especially eczema. He concluded by assuring the guests that to benefit from the reviving power of the Scottish climate it was not necessary to be a Scotsman. M. Blondel replied on behalf of the French physicians.

Bequest to Aberdeen University.

The newspapers confirm the report that Mr. William Robbie, a Scotsman, 91 years of age, who went to Melbourne a poor man in 1852, has recently died, leaving £29,000, the interest on which is to be employed in maintaining perpetual scholarships at Aberdeen University.

Medical Matters at the Miners' Conference in Edinburgh.

At the meetings of the twentieth annual conference of the Scottish Miners' Federation, held in Edinburgh on August 20th, when Mr. Robert Smillie, the President, occupied the chair, several medical matters were touched upon. Mr. Leishman, the Chairman of the Scottish Insurance Commissioners, said that the Insurance Act had achieved great success; the only disquieting feature was that many societies were a little uneasy about the amount of sickness claims that were being paid. He thought it was well to remember that sickness claims were paid only if people were incapable of working, and that the Act was not a fresh-air fund or a holiday fund; any man or woman who took money who should not take it was really inflicting an injustice on all other insured persons, and all the others were paying some deficit or some levy because of this improper use of funds. Another medical matter dealt with was the provision of drinking water in mines. Mr. Hood (Ayrshire) moved that "employers be compelled to supply drinking water in the mines the same as in all public works," and this resolution was adopted, as was also the following, moved by Mr. Doonan:

> (*a*) That where workmen are permanently, totally, or partially disabled, they shall have the right to secure a commutation of their compensation on the same terms as the employers; (*b*) that medical men shall be barred from granting certificates based on conditions not existing when they examine, but which they think may exist at some future time, and shall be confined to stating health conditions and fitness for work at the time of their examination; (*c*) that employers shall pay full compensation to parents in all cases of fatal accidents even when they are not totally or partially dependent on the deceased at the time of death.

The Ayrshire delegates brought up the matter of the capitation grant, and Baillie M'Kerrel moved:

> That the National Health Insurance Act, 1911, be amended to the effect that dependants of insured persons be included under the capitation fee paid to the medical practitioners.

Mr. Hood seconded, but Mr. Murnin (Stirlingshire) thought it was an insult to advocate that doctors should be paid 7s. a year for attending insured persons and their dependants, and he moved the rejection of the resolution; and Mr. Gilmour said it was ridiculous to include these dependants at the present capitation fee; they paid 13s. before, and against that they had no complaint. Mr. Adamson, M.P., pointed out that the resolution did not say what the capitation fee was to be; and Mr. Smillie said that the resolution did not confine itself to the capitation fee at present paid; the Ayrshire people had been badly treated by the medical profession, but it was not necessary at present to inquire closely into the question whether or not the present capitation fee was sufficient; all that should be done was to affirm the principle. With this explanation the resolution was unanimously adopted. A resolution for the abolition of female labour from the pit banks was also adopted. The conference continued to sit on August 21st and 22nd, but no further matters affecting the profession were discussed.

Ireland.

[FROM OUR SPECIAL CORRESPONDENTS.]

Crooksling Sanatorium.

The Dublin County Council and the Corporation of Dublin have failed to come to an understanding as to the joint control of the Crooksling Sanatorium, and the county council has asked for a Local Government Board inquiry.

Insanity in Ireland.

The annual report, covering the year 1912, of the Inspectors of Lunacy in Ireland, recently laid on the Table of the House of Commons, is a most depressing volume to analyse. On January 1st, 1912, there were 12,868 males and 11,787 females, or a total of 24,655 insane patients confined in the lunatic establishments of Ireland. These numbers had increased on January 1st, 1913, to 12,962 males and 11,877 females, or a total of 24,839. There was, therefore, a total increase of 184 during the year—the corresponding increase for the previous year having been 261. The increase for 1912, however, was 118 less than the average increase for the preceding ten years, which was 302.

The numbers in district and auxiliary asylums increased by 278, and the single patients in unlicensed houses by 2; those in the private asylums and institutions for the insane decreased by 26, those in Dundrum by 6, and those in workhouses by 64. One of the tables in the report, giving the number and distribution of all lunatics under care on December 31st of each year from 1880 to 1912, shows that in this interval of time an increase of 11,857 has taken place in the total; the inmates of district and auxiliary asylums have increased by 12,491; the criminal lunatics in Dundrum Asylum have decreased by 6; the patients in private asylums and institutions have increased by 258; while the pauper lunatics in workhouses have decreased by 1,020.

The report goes on to say that this does not include all the insane in the country, as a number reside in their own homes, or with relatives, or are wandering at large. The general census, according to the inspectors, is, therefore, the only means by which the number of the latter classes can be ascertained. At the last census they amounted approximately to 14 per cent. of the total.

Speaking of the State Criminal Lunatic Asylum at Dundrum, the report states that the number of patients resident there at the end of 1912 was 162—namely, 141 males and 21 females, as compared with 147 males and 21 females at the end of 1911—thus showing a decrease of 6 patients during the year 1912.

The admissions (22) during 1912 showed a decrease of 5 on the number for the previous year, while the discharges numbered 24, being 2 less than in the previous year.

There were 4 deaths in 1912 as compared with 1 in 1911.

Of the 22 cases admitted, 12 were found insane on arraignment, 1 was found guilty but insane when the offence with which he was charged was committed, and 9 convicts, having become insane whilst undergoing sentences of penal servitude, were transferred to the asylum.

The net average cost of maintenance during the financial year 1911–12 was £43 4s. 1d. per patient, as compared with £43 0s. 1d. in the previous year, showing an increase of 4s.

England and Wales.

[*FROM OUR SPECIAL CORRESPONDENTS.*]

LONDON.

Radium in Poor Law Infirmaries.

The Wandsworth Board of Guardians at its meeting on August 21st discussed a resolution submitted by Mr. D. Grundy that the Local Government Board be asked to sanction an expenditure of at least £1,000 on the purchase of radium for St. John's Hill Infirmary. Mr. P. Rees, the chairman, thought the better course would be to ask the Board to place the whole of the radium treatment for the metropolis in the hands of a central authority such as the Asylums Board, which could appoint a travelling operator to visit all the infirmaries. Dr. MacCormac, the medical superintendent, stated that there ought to be a sufficiently large amount of radium in the institution to ensure treatment for all suitable cases. The board decided to take no action at present.

LIVERPOOL.

The controversy between the local Division of the British Medical Association and the Liverpool Watch Committee has resulted in the concession of the demands of the medical profession. It will be remembered that the salary for the vacant post of police surgeon was fixed by the Watch Committee at a figure (£80) approximately equivalent to 1s. a head of the persons to be attended. The local profession pressed for a salary (£100 a year) based on Insurance Act rates, with extra fees for examination of recruits, and asked the Watch Committee to receive a deputation from the Association to discuss the question. The request was, in the first instance, declined, but subsequently accepted, and after a full discussion of the points raised the Committee has now decided to recommend the Council to accept the terms suggested by the Association. This decision is all the more satisfactory as it appears that there were some applications forthcoming even on the conditions originally offered by the Committee.

Report of Medical Officer of Health.

The report of the medical officer of health for the past year affords further evidence of the beneficent results of modern sanitation. The general death-rate (17.7 per 1,000) is the lowest recorded, and contrasts favourably with the average (23.1) of the first five years of the incorporation of Greater Liverpool. This record has been established in spite of an epidemic of measles, and in spite of the usual contribution of deaths from transmigrants, foreign sailors, and from amongst persons coming to the city for the first time to undergo medical treatment in the hospitals.

The verification of diagnosis in obscure cases, the systematic examination of rats for plague infection, and many other lines of investigation in port sanitation are making many calls on the city bacteriologist.

The campaign against tuberculosis is steadily developing. A scheme was adopted in 1907 which provided twenty-four beds for the treatment of tuberculosis at Fazakerley Hospital. The success which attended this experiment led the Hospital Committee to proceed further, and by the time of the passing of the Insurance Act the municipal hospitals were providing beds for 100 cases of pulmonary phthisis. Favoured by the facilities afforded by the Act a comprehensive scheme for the treatment of all forms of tuberculosis has now been launched. This includes the provision of 300 beds for pulmonary consumption at Fazakerley, as well as beds for other forms of tuberculous disease at Park Hill and elsewhere. A beginning will be made in the provision of open-air schools for the simultaneous education and treatment of tuberculous children. This will obviate the loss of education to the child, and the loss of the Government capitation grant to the Education Committee.

In Liverpool the decline in the birth-rate is more than counterbalanced by the decline in infant mortality. An investigation has been going on for some time with the view of finding a cheaper and more effective method of sterilizing milk. A special electrical apparatus has been devised which promises to be both effective and commercially sound. The idea is due to a layman, Alderman Shelmerdine, who has devoted much time and thought to the problems involved in the preservation of infant life. The necessary experiments were carried out in the laboratory of the City Bacteriologist.

A few cases of typhus fever were detected among transmigrants and their contacts. Typhoid shows a gradual decline, especially marked in rehoused areas. The occurrence of an epidemic of measles has impelled the Health Committee to institute an investigation into the etiology of that disease.

Special Correspondence.

PARIS.

Blood Changes During Digestion.—Myelitis Due to Eberth's Bacillus.—Autovaccination in Typhoid.

Dr. Krolunitsky, who has been studying the blood changes found during digestion, recently reported his findings at a meeting of the Society of Biology. He found that within even four minutes after taking a meal there was a considerable diminution in the number of leucocytes to be found in the blood. This diminution was found to be due to the action of a ferment known as leucocytolysine, and can be found in the blood serum within a few minutes after taking a meal, and disappears again towards the fourth hour of digestion. The diminution in the proportion of leucocytes present in the blood was found to be unaffected either by the quality or quantity of the food taken, and in dogs was observed to be brought about even by the sight of food, thus proving the truth of Pawlow's assertion as to the existence of a psychic factor in digestion.

An interesting case of myelitis was reported by Dr. Renault at a recent meeting of the Medical Society of the Hospitals. The patient, a young child, was brought to hospital suffering from phenomena which at first sight suggested spastic paraplegia. Preference, however, was given to a diagnosis of toxic myelitis, and on further inquiry into the history of the case it was discovered that a brother of the child had suffered some little time previously from typhoid fever. The Widal test was then applied to the child's blood, and gave a positive reaction, while at the same time the *B. typhosus* was recovered from its urine. In the event the myelitis gradually cleared up and the patient was discharged well, though only after prolonged treatment.

At a further meeting of the same society Drs. Josué and Belloir reported success in the treatment of enteric fever by autovaccination. When a suspected case arrived in hospital a haemoculture was made, and usually gave a positive result forty-eight hours later. This culture was then sterilized for six hours at 58° C., and three injections of 200 million were given at twelve-hourly intervals. If the temperature had not fallen to normal within five days another like dose usually brought the temperature down. Severe cases, the authors claimed, became moderate cases after vaccination and moderate cases became benign. Of 12 patients thus treated 11 gave good results. In the serious cases the temperature fell to normal between the twenty-fifth and thirtieth day, and in moderate cases the temperature fell to normal on the appearance of the rose-spot eruption. The authors recommended this autovaccination in all cases of typhoid.

At the Royal Institute of Public Health in October there will be delivered by various medical men a course of lectures on tuberculosis for the benefit of general practitioners, candidates for appointment as tuberculosis officers, and others. The introductory lecture will be delivered at 5 p.m., on October 10th by Professor Sims Woodhead. The series of eleven lectures is intended to cover all aspects of the subject, and will include bacteriological demonstrations and visits to sanatoriums and tuberculosis dispensaries. At the close of the course there will be an optional examination, followed by the granting of certificates to those who are deemed to have acquitted themselves well. The fee for the course is 3 guineas.

Correspondence.

THE PRODUCTION OF IMMUNITY TO RINDERPEST.

SIR,—A short time ago a friend drew my attention to the following statement, contained in the article on immunity in the *Textbook of General Pathology* (page 139, line 17), written by Dr. C. H. Browning, which reads as follows:

> Koch immunized cattle against rinderpest by injecting, subcutaneously, the bile of animals dead of the disease. Certain constituents of the bile have a mitigating effect on the unknown virus which is present, since Kolle showed that if the infective bile is certrifugalized and the washed sediment is used for inoculation, the animals acquire the disease in a mitigated form.

I have had some experience in the cure and prevention of rinderpest, and this statement is, in my opinion, open to misinterpretation. When it was evident that bovine plague was approaching the Cape Colony, the Colonial Government obtained the services of Professor Koch, who arrived in South Africa in November, 1896. As he was obliged to leave the colony in 1897, having started the bile process of immunization, I was relieved of my duties as medical officer of the Cape Colony and sent to Kimberley to succeed Koch as Director of the Kimberley Rinderpest Experimental Station, a post I held until the station was closed in July, 1898, the disease having been stamped out of South Africa, thanks to the simultaneous method of inoculation.

I was with Koch for three weeks or a month before he left the colony, and during that time had very many discussions with him, and received much valuable instruction, all of which I noted at the time, and Koch kindly read my notes so that I might be sure I had correctly stated his opinions.

Later Dr. W. Kolle, who had gone to the Cape to take up research work in leprosy on Robben Island, was sent to Kimberley to assist me.

The question of the nature of the organism contained in the immunizing gall was discussed by Professor Koch and myself. On March 10th, 1897, Dr. Koch asked me my views as to the way in which the bile from a rinderpest animal operated to produce immunity. My answer was: "I suppose the bile contains the organism, whatever its nature may be, which causes the disease. This organism, growing in a medium unfavourable to its full development, becomes attenuated, and when injected into an ox produces a disease the manifestations of which are chiefly local, but which protects the animal much as vaccination protects against small-pox. Professor Koch told me I was mistaken; that the organism in the bile was not attenuated. His view was that the swelling caused by the injection of the bile incarcerated the organism so that while it could not invade the system it produced protective substances, which entering into the circulation produced immunity.

From such an authority I received this explanation with implicit faith, until, thinking over the question in the light of my daily increasing experience, I began to doubt its correctness, and I resolved to put it to the test.

I took 60 c.cm. of bile from an animal suffering from rinderpest after inoculation with virulent blood—a quantity of bile sufficient to immunize six oxen. The specific gravity of the bile was 1,018.97 at 80° F.—the laboratory temperature. It was a vivid green, and the spectroscope showed the two absorption bands of arterial blood, which were reduced, and gave the characteristic spectrum on the addition of Stokes's reagent.

By means of a suction pump 60 c.cm. of bile were passed through a Berkefeld filter. The filtered bile amounted to 55 c.cm., the remaining 5 c.cm. being absorbed by the bougie or collected at its base round the washer. These 55 c.cm. of filtered bile were preserved.

After removing all the bile from the bougie by passing normal saline solution through it, the bougie was scrubbed with a stiff brush and normal saline, and subsequently scraped with a platinum spatula. The washings amounted to 15 c.cm.

Examined, both stained and unstained, under a $\frac{1}{12}$ in. oil immersion, no organisms besides a very few cocci could be detected.

I considered that if the organism were contained in these 15 c.cm. of saline, and if it were unmodified, then the injection of the whole quantity, which would under such conditions contain many thousand lethal doses, into a susceptible animal would inevitably be followed by rinderpest, and almost equally certainly would cause death.

Accordingly, on April 10th, 1897, I injected into an ox (No. 209) the whole 15 c.cm. of saline, which contained the organisms from 60 c.cm. of bile.

From some cause which, after the lapse of sixteen years, I can no longer remember, the animal's temperature was not taken until the afternoon of April 11th. It was then slightly elevated—103.6°. The normal range at Kimberley being between 100° and 102°. With this exception, the temperature remained fairly normal until April 20th—that is, the tenth day after the injection. The ox had shown absolutely no symptoms, and there was no swelling at the point of inoculation into the dewlap, which always occurs when bile is injected subcutaneously.

It was known from experiments made by Koch, and confirmed by me, that it was not safe to inoculate a beast with virulent blood until ten days after the injection of the immunizing bile. After the sixth day or so the animal might have rinderpest, but would probably recover. So on the tenth day (April 20th) this animal received a subcutaneous injection of 0.2 c.cm. virulent blood, mixed with 10 c.cm. of normal saline—enough to kill many oxen.

There was a suggestion of a rise of temperature between April 22nd and the 26th; but this would have occurred under similar circumstances with any freshly immunized animal. Certainly there was no fever, and the animal's health was perfect. On May 8th it received 10 c.cm. of virulent blood, and was none the worse. There was no rise of temperature.

This animal was the first I used to produce serum of high power; it received repeated injections of virulent blood in increasing doses at intervals, until at last it was given 4,000 c.cm. at once. Its serum was sold, and brought in the respectable sum of £200, and when the station was closed the animal was sold for £12.

This experiment was performed at the time when the greatest care was exercised to prevent infection. If animal 209 had developed rinderpest after this injection it would not have been conclusive proof that the disease was caused by the injection. The fact that no signs or symptoms of rinderpest followed the injection shows clearly that these 15 c.cm. of normal saline did not contain any unmodified virus. Again, the fact that the animal was immune after the injection proves that, despite the absence of any symptoms, the 15 c.cm. did contain an organism capable of conferring immunity—in other words, a modified rinderpest organism.

I made another experiment to ascertain the condition of the organisms contained in the bile.

It seemed to me that if Professor Koch's theory were correct—namely, that an unmodified organism was incarcerated in the swelling caused by the subcutaneous injection of the bile, and if the same quantity of bile—10 c.cm.—were introduced into the venous circulation, with proper precautions, there would be no incarceration, and the organism, if unmodified, would certainly cause the animal to suffer from rinderpest.

On April 20th, 1907, I introduced 10 c.cm. of immunizing bile into the jugular vein of a cow (No. 213). The cow did not have rinderpest. On the other hand she was not immunized, because she succumbed to an inoculation of 0.2 c.cm. virulent blood, which was administered on May 8th.

I afterwards found that more virulent blood than would suffice to kill an ox, if administered by subcutaneous injection, could be introduced into the venous circulation without necessarily giving rise to an attack of rinderpest, but that the animal was not immunized thereby.

When Dr. Kolle performed his experiment we were making very powerful serum, and the minute precautions against infection, so necessary when working with bile, not being required, were not taken. In addition there was rinderpest in the country all round the experimental

station, and more than once the oxen sent to me for serum production and experiment were found to be incubating rinderpest. It is therefore not surprising that the ox, the subject of Dr. Kolle's experiment, had rinderpest.

I submit, with all deference, to my friend and late junior colleague that he is not entitled to make the assertion attributed to him, on the evidence of one experiment, carried out under the conditions I have described, especially in face of the much more conclusive experiments performed by me.

Four oxen were injected with 10 c.cm. each of the filtered bile used for the first experiment, one with 10 c.cm. of the filtered bile pure and simple, three with different amounts of virulent blood added. The injection of the bile produced no evident effect, but all four had rinderpest, and two died when they were subsequently inoculated with 0.2 c.cm. of virulent blood, showing that they were not completely immunized. In fact, rinderpest bile kills the rinderpest organism. No ill results follow the injection of a mixture of rinderpest bile and virulent blood until the amount of blood amounts to 50 per cent. of the bile—that is, 10 c.cm. bile with 5 c.cm. blood.

The action of rinderpest bile and of the immunizing serum is very interesting; they are essentially different, and are totally unlike that of antidiphtherial serum. But I have not now the time, nor would you grant me space, to discuss this subject.—I am, etc.,

GEORGE TURNER,
Late Director of the Kimberley Rinderpest Experimental Station and Laboratory, and late Medical Superintendent of the Pretoria Leper Asylum.
Colyton, Devon, July 14th.

P.S.—I see that Professor Loeffler is reported in the BRITISH MEDICAL JOURNAL of August 23rd, p. 466, to have stated that the virus of rinderpest will pass through a filter, presumably a porcelain filter. Yet in my four experiments a Berkefeld did not permit its passage. I may also remark that the experiment performed by Todd, mentioned by Dr. C. J. Martin (p. 467), was also tried by me, with similar results, in 1897, and that Koch, earlier in that year, showed that while serum from a rinderpest ox transmitted the disease if it were allowed to sediment two or three days in a test tube several cubic centimetres from the upper layer were harmless, but a few drops from the bottom killed.

THE FUTURE OF THE INDIAN MEDICAL SERVICE.

SIR,—As a close observer of the evolution of medicine in India, and as one interested in this matter, as well as in the future of the Indian Medical Service, I should like to make some remarks to some extent amplifying those made by your correspondent "I.M.S." in your issue of August 23rd.

The position of affairs appears to be, briefly, as follows: Lord Morley in 1908 somewhat abruptly announced that in his opinion the time had arrived when no further increase in cadre of the Indian Medical Service could be permitted, and that so far as possible Indian Medical Service officers in civil employ should be withdrawn to make room for civil medical practitioners recruited in India. The promulgation of this policy led to results which were no doubt neither intended nor expected. Competition to enter the service suffered an unwonted check and, owing to the fact that the opportunities of civil employment were curtailed, the service ceased to attract men of high professional standing in the same numbers as formerly. This in turn has led to more Indians obtaining admission to the service, so that, for example, at the last examination no less than 50 per cent. of the successful candidates hailed from the East. A further result of Lord Morley's policy has been the withdrawal from a number of districts of the European civil surgeon, a circumstance which has met with the approval of neither Europeans nor Indians. Further, strenuous efforts have been made to fill all new appointments with Indians, such, for example, as the sanitary service, which within the last few years has been extensively reorganized and expanded.

None of these results point to an increase of efficiency on the part of the medical science in India, but if it could be shown that they are counterbalanced by others favourable to the welfare of India as a whole, there would be much to be said in their favour. But this is notoriously not the case, and, owing to the lack of suitable private medical practitioners, in spite of strenuous efforts on the part of the Government of India, it has not been found possible to give full effect to Lord Morley's policy. Thus, throughout the whole of India at the present time there is only one civil surgeoncy held by a private medical practitioner. It is not altogether that suitable men do not exist, but they are unwilling to leave lucrative practices in the large towns for the small pay and hard work of isolated districts.

The truth is, Western medical science is at the present time in its infancy in India, and any decrease in the efficiency or numbers of its representatives is bound to act prejudicially on its advancement. At the present time there are some 250 civil surgeoncies scattered amongst 310 million people—and only 138 of these are held by European officers of the Indian Medical Service. In these circumstances, is it possible to argue seriously that the civil surgeon, burdened with his multifarious official duties, has the time even if he had the inclination to interfere appreciably with private medical enterprise?

On the other hand, there are many cogent reasons why the European civil surgeon should be retained, not the least important of which is that in the present stage of medical evolution in India it is essential for the welfare of India itself that a leaven of medical officers conforming to the highest professional and ethical standards should be available to foster the growth of scientific medicine and to ensure its advancement along right lines.

Unfortunately, Lord Morley's policy, which no doubt has the same object in view, pursues a diametrically opposite course, with the result so far that, whilst he has struck an unmerited blow at the prestige of an old and distinguished service, he has not been able to find any workable substitute.

It remains for his successor at the India Office to re-examine the question with an open mind, and to take such steps as he may consider necessary to repair the damage before it is too late.

In conclusion, I do not think that exception can justly be taken to the recent circular, mentioned by your correspondent, in regard to the professors at the medical colleges being limited to consultant practice. These colleges are all situated in cities where private practitioners abound, and it is surely inexpedient, if not derogatory, for them as specialists to engage in private practice in competition with the general practitioner.

Even the extension of this principle to the district civil surgeon, in regard to private practice amongst Indians, would cause little hardships; for to all intents and purposes the district civil surgeon is even now the local consultant in the same manner as the professor at the medical college may be termed the provincial consultant. As a matter of fact, at the present time most civil surgeons attend well-to-do native patients at the consultant fee of one guinea, and direct elsewhere those who wish to pay smaller sums. It may well be that the time has arrived when this innovation might be officially adopted, but it is only reasonable to expect that it should be accompanied by a revision of the emoluments affected by it.—I am, etc.,

August 26th. SCRUTATOR.

SURGICAL TREATMENT OF TUMOURS OF THE BRAIN.

SIR,—In your summary of the proceedings of the joint meeting of the Sections of Surgery and Neuro-Pathology of the International Medical Congress on the treatment of tumours of the brain in last week's issue (p. 449), I am reported to have said, "his pathological experience convinced him years ago that the surgeon could do little or nothing, and that he had not seen reason to alter that opinion." This statement fails to represent what I said. My statement was "that in comparatively few cases of intracranial tumour could the tumour be successfully removed and the patient completely cured by surgical operation." My experience is that in many cases the surgeon can do a very great deal to relieve suffering, save sight, and prolong life by suitable operation in cases of brain tumour.—I am, etc.,

Edinburgh, Aug. 23rd. BYROM BRAMWELL.

THE TREATMENT OF NEURASTHENIA.

SIR,—Since I always take two or three cases of neurasthenia or borderland conditions into my own private house, I have thus had the opportunity of carefully observing the effects of treatment.

A quiet place with a bracing atmosphere and dry soil should be selected. Each patient should be treated as an individual according to the requirements of his own case.

Sea air is unsuitable where insomnia or constipation is present. Prolonged rest in bed at the outset is invaluable accompanied by massage, or that light stroking which resembles stroking a cat. If the patient has lost flesh, it is advisable to feed to excess, and give large quantities of milk. Electricity—faradic or galvanic—is, I am convinced, helpful as a rule; in some cases it is detrimental, and must then be applied very weakly for its suggestive effect. Suggestion is most important. Liquid petroleum should be used for constipation, and for insomnia paraldehyde, but the general treatment soon rights the latter.

After the period in bed is over the patient's interests should be roused in as many healthy directions as possible. This entry into the home life of the doctor with whom the patient is appears to me to be the best method of restoring lost equilibrium.—I am, etc.,

Chorley Wood, Aug. 13th. CLAUD F. FOTHERGILL.

THE COLOUR VISION TESTS OF THE BOARD OF TRADE.

SIR,—With reference to your article (p. 512) on the sight tests of the Board of Trade, I may say that a year or so ago the head of one of the Government departments told me that it was an invariable rule that no pioneer or inventor should be allowed to benefit by his work by being given an appointment which arose through that work, "because it would be such a score for him." The appointment was always given to a neutral man. The Board of Trade has not acted up to these traditions. Though it has adopted a lantern lacking many of the essential features of a lantern test, it has only appointed as advisers those who have strenuously opposed the lantern test and advocated the wool test. Had a neutral man been appointed the chief essential of a lantern test would not have been omitted. The chief fact which makes colour-blind men so dangerous is that, though in ordinary conditions ships' lights may be named correctly, in certain conditions a red light will be called green and a green light called red without the faintest hesitation or doubt, the observer feeling certain that he is right. This can be demonstrated with my lantern, but not with that of the Board of Trade. The fact can be equally well demonstrated by a practical examination at sea conducted by an examiner with a knowledge of colour blindness. This fact is now becoming universally recognized. The chief examiner of one of the largest European countries told me at the late International Medical Congress that his decision that a man was colour blind was disputed, and several captains stated that they had carefully tested the man at sea and that his colour vision was absolutely normal. The chief examiner (a medical man, not a physicist or a sailor) tested the man at sea with ordinary ship's lights in the presence of many officers and other unbiassed persons. The man made so many mistakes between the red and green lights that the examiner's decision has never been disputed since. This fact, which I pointed out twenty-five years ago, and which has been so entirely neglected by the Board of Trade, is recognized by many ship owners. In the minutes of evidence given before the late Committee the following appears from Yeoward Bros.:

The most prevalent error appears to be the mistaking of the port light, during rain or misty weather (when the brilliance of the red light is dimmed) for green.

The Booth Steamship Company report:

The wool test has, in the experience of this company, failed completely to detect colour blindness, whereas the lamp with the modifying glasses will always catch a colour-blind man.

The British are a very practical nation, and very few normal-sighted officers of the mercantile marine, much less any of the public, would travel in a ship with an officer in command who called a blazing red light "green" before them. Until the present tests are abolished normal-sighted persons will be rejected and colour-blind men passed as before. It is absolutely necessary to exclude dangerously colour-blind men from our ships, but when they have been passed before as normal they should be fully compensated.—I am, etc.,

London, N.W., Aug. 23rd. F. W. EDRIDGE-GREEN.

SIGHT TESTS FOR SEAMEN.

Dr. KARL GROSSMANN (Liverpool) writes to correct errors in the brief note (BRITISH MEDICAL JOURNAL, August 23rd, p. 480) on his paper on this subject read in the Section of Ophthalmology of the International Medical Congress. He writes:

1. I did not say I consider the Holmgren test "particularly bad." What I said was that it was interesting and instructive to a certain degree, but not reliable enough. I was one of the first to demonstrate this insufficient reliability at the International Medical Congress held in Berlin in 1890.

2. I never made the absurd statement that "any" defect in light perception should be considered a bar to a candidate's employment as a seaman. In my paper I advocated the introduction of the examination of the light sense so as to avoid any case of night-blindness being allowed to be considered as perfect normal sight in those who are responsible for the navigation of a ship. I further advocated the examination, for daylight and dusk, of those to be employed as look-outs, and further, the noting down of the vision of all seamen, not for the purpose of disqualifying anyone, but to show the master of the ship at once on whom to rely for look-out purposes, in case of need and of shortage of hands.

Public Health AND POOR LAW MEDICAL SERVICES.

POOR LAW MEDICAL OFFICERS' ASSOCIATION OF ENGLAND AND WALES.

A COUNCIL meeting of this association was held at 34, Copthall Avenue, London Wall, E.C., on August 14th, Dr. Balding, J.P., presiding.

West Ham Dispute.

The Honorary Secretary reported that on the refusal of the district medical officers in West Ham to consent to the deduction from their salaries proposed by the guardians, the latter had applied to the Local Government Board, which had written to the medical officers, asking for their comments on the proposal. The following reply had been sent to that authority:

Sir,

We are in receipt of circular letter of 16th July, and in reply we beg to state:

1. The central relief station is on the extreme edge of the district.

2. We the medical officers should have to attend there at certain hours, and in all weathers. This would mean a great amount of inconvenience, as in the past we have always seen patients at our surgeries, and very often private patients at the same time.

3. The reduction of salary proposed by the guardians, namely, £20 a year, does not mean value of drugs, but it also means reduction of superannuation benefit. Two of us have paid superannuation deduction on £180 for some time, Dr. Beaumont, senior medical officer, about 15 years.

4. After hours at the central station, any urgent case will have to be treated at our surgeries, and we shall have to supply medicines, as we are now doing. We are quite prepared to do the work at the central station, but we respectfully suggest that the increased work and inconvenience should be compensated for by the supply of drugs being made by the guardians without deduction from our salaries.

President of Local Government Board.

No answer had so far been received from the Local Government Board.

Maternity Benefit.

Dr. Holder reported that his application to the Sculcoates Guardians for compensation for loss of fees through the action of the Insurance Act with regard to maternity benefit had been refused, on the ground that his practice had been benefited in other ways through the Insurance Act. He did not think that anything further could be done in his case, but he recommended that attention should be given to complaints coming in from other quarters on the same subject.

Annual Meeting.

The Honorary Secretary reported that the next annual meeting would be held at Burnley, and proposed that Dr. Agnew of that town should be elected a member of the council, and he was unanimously elected.

Attendance on Resident Insured Members of Poor Law Staffs.

The council next considered a claim made by certain boards of guardians to receive the fees paid to indoor Poor Law medical officers by Insurance Committees for attendance on resident insured members of the staff. The Insurance Act Committee of the British Medical Association, after considering the matter, had instructed the Medical Secretary to send a strong protest against such a practice to the Local Government Board. A copy of the letter was read, which was much approved by the members of council present. The Honorary Secretary had also brought the subject before the Representative Meeting at Brighton, where the following resolution was unanimously carried:

> That this meeting strongly condemns any arrangement made by indoor Poor Law medical officers with boards of guardians in reference to insured members of their staffs, whereby the whole or a portion of the fees paid to the said medical officers by an Insurance Committee is handed over to the treasurer of the guardians. That it is of opinion that any Poor Law medical officer who accepts such a condition is acting in a manner derogatory to the medical profession and against the interests of the Poor Law Medical Service and the profession.

The Council expressed its agreement with this resolution, and hoped that all indoor Poor Law medical officers would resist such unworthy treatment, and refuse to go on the panel unless all fees paid by the Insurance Committees were handed over to them without deduction.

A letter was read from Dr. Cannan (West Ham), asking advice with regard to a demand from the guardians of the district asking medical officers for a fortnightly return of the sick poor treated by them. The Honorary Secretary had advised resistance to the demand, on the ground that the medical register which all district medical officers were required to keep would give all the information required. This was approved by the Council.

Burnley Dispute.

Dr. Agnew then explained the position of things in the Burnley Union. So far the guardians had only been able to fill up three of the fifteen vacancies. He read the following letter that had been sent to the Local Government Board on the existing impasse:

President of Local Government Board—

Sir,

With further reference to my letters of December 9th, 1912, and March 8th, 1913, to your Honourable Board, I am directed by the Burnley Division of the British Medical Association to protest very strongly to your Honourable Board against the confirming of (*a*) the medical appointments, and (*b*) the medical arrangements in the other twelve districts for attendance on sick poor made on Thursday last, May 29th, by the Burnley Board of Guardians.

The grounds of the protest are:

1. The reason given by the guardians for splitting up the union into smaller districts was that the population of most of the districts exceeded the number allowed under Article 159 of the General Consolidated Order, July 24th, 1847, of the Poor Law Commissioners. On Thursday last the guardians considered applications for the fifteen medical posts they had advertised. There were only three applicants, and these were appointed to the three districts for which they had made application. A small subcommittee was appointed at the same guardians' meeting to consider the question of medical relief in those districts for which there was no application. This subcommittee has decided that the whole of the union is to be worked by these three officers and have fixed salaries for this work.

The first contention of the guardians—namely, that the original districts were too large and contained too great a population for one man to look after—thus falls to the ground, in that they appoint now three men to do the work which they considered was too great to be done, as formerly, by *nine*, and which they contend can only be efficiently done by *fifteen*.

2. It is impossible that considerable hardship to the sick poor will not be the result of this arrangement, many of whom will be called upon to travel five or six miles to get medical attention. Further, I am to point out that these three officers, who are busy practitioners, will not be able to attend these persons at their homes with any degree of efficiency or regularity.

3. I would further point out that in none of the three districts to which medical officers were appointed is the salary a sufficient one for the work. The whole of the Burnley profession, with these three exceptions, is unanimous in the opinion that the conditions of service offered are not such as can be accepted.

4. We understand that the opinion of the Local Government Board is that vaccination is most efficiently performed when done by officers holding appointments for large areas. The present policy of the Burnley Guardians is to appoint public vaccinators for very small areas. Moreover, without there having been any application for an increase of fees for vaccination, the guardians, after dismissing their public vaccinators, have voluntarily increased the fees for vaccination when giving the post to that of district medical officer. The reason appears obvious.

The Burnley Division of the British Medical Association therefore prays that you will not confirm the appointments made by the Burnley Guardians, nor will you permit the arrangements made by the said guardians for medical relief in those districts for which there were no applicants for office. As the new board of guardians refused at their first meeting to receive a deputation of medical men, I am now desired to ask your Honourable Board to receive a deputation of medical men practising in the union. If, therefore, you are willing to receive such a deputation, and will inform me which would be a convenient date for you, I will arrange the matter for that date.

I am, etc.,
A. E. BIRD, Honorary Secretary.

A copy of this letter was sent to the Burnley Guardians by the Local Government Board with a request for comments.

The following were the guardians' observations:

1. Owing very largely to the action of the Burnley Division of the British Medical Association, the guardians have been unable to appoint medical officers and public vaccinators for the fifteen districts into which the union has been divided with the sanction of your Honourable Board. It is quite correct that the guardians up to the present have been able to appoint only three medical officers and public vaccinators, but it is not correct to state that only these three are in attendance on the sick poor in the other districts of the union. The guardians' temporary arrangements are such that the sick poor are receiving adequate and efficent attention.

2. As regards the allegation that many of the sick poor will have to travel five or six miles to get medical attendance, this statement is misleading and incorrect. The sick poor have to make application in the first instance to a relieving officer, and the situation of the relieving officers has not been changed in any respect.

3. The old board did receive a deputation from the Burnley Division, when their case was fully stated. With regard to vaccination fees, the guardians have made them uniform throughout the district. The guardians strongly resent the autocratic action of the Burnley Division in their attempt to dictate to them how the union should be divided for medical and vaccination purposes, and as to the salaries to be paid to the medical officers. The guardians respectfully request your Honourable Board to advise them on the whole question, bearing in mind that three appointments have already been made.

The guardians' letter with the above comments had again been sent them by the Local Government Board, and they were about to forward an answer dealing with it. At the present time it was impossible to forecast the final result.

There was some discussion, and the Council expressed its warm approval of the loyalty shown generally by the Burnley profession, and the active assistance rendered by the local Division of the British Medical Association.

Insurance Act Committee of the British Medical Association.

The attention of the Council was called to the resolution of the Annual Representative Meeting, authorizing the Poor Law Medical Officers' Association to elect a member of the Insurance Act Committee of the British Medical Association. The Council elected Dr. Major Greenwood.

The Shoreditch Guardians.

The Honorary Secretary reported that another vacancy had occurred in the parish of St. Leonard, Shoreditch, with respect to a medical officer for the No. 2 District. When a vacancy occurred in the No. 3 District two years ago the association had approached the Local Government Board in conjunction with the City Division of the British Medical Association, and protested against the new medical officer being appointed at the old salary of £115 a year. Owing to this intervention the salary was raised to £150 per annum. The No. 2 District contained more sick poor than the No. 3, and consequently the medical work was heavier, yet the guardians had elected the new officer at the old salary of £115 per annum. The City Division and the Poor Law Medical Officers' Association had, therefore, again appealed to the Local Government Board not to confirm the appointment unless the salary were made the same as in the No. 3 District.

The Services.

INDIAN MEDICAL SERVICE.

The Government of India has decided that lieutenants of the Indian Medical Service should, at their departmental examination, take up both subheads of any subject together, and not at different examinations.

The Secretary of State for India has sanctioned the addition to the cadre of the appointment of Health Officer, Delhi.

The Head Quarters Office.

During the past few years all questions concerning accelerated promotions, examinations of lieutenants, courses of study at home and in India, the *x*-ray institute, and specialist appointments have been transferred to the office of the Director-General, Indian Medical Service. The Secretary of State has now decided that the office shall be augmented and organized as follows: In place of one Secretary who controlled the whole office under the Director-General, there will in future be a Deputy Director-General, and an Assistant Director-General (Stores). The Deputy Director-General will draw the same pay as at present, the Assistant Director-General (Stores) will be paid as a Medical Storekeeper to Government. The Assistant Director-General will be an inspecting officer, as far as medical stores dépôts are concerned, and will thus take the place of the Inspecting Medical Storekeeper. Lieutenant-Colonel Bruce Seton, V.H.S., who has held the office of Secretary to the Director-General for over a decade, has been appointed Deputy Director-General, and Major Jay Gould has been gazetted to the new appointment of Assistant Director-General.

Gratuities for Infection when Operating.

The following order of the Government of India is a somewhat tardy recognition of the risks run by Civil Surgeons in a country like India and Burma, where venereal diseases are lamentably rife amongst both rural and urban populations.

"It has been ruled by the Secretary of State for India that the performance of operations on venereal patients may fairly be regarded as a duty involving extraordinary bodily risk within the terms of Article 735 of the Civil Service Regulations. Proposals for the grant of pensions or gratuities to civil medical officers injured in this manner may accordingly be dealt with under Articles 739 and 740 of those Regulations."

Obituary.

GEORGE MIDDLEMISS, M.D.Durh., L.R.C.P. and L.M. Edin., L.F.P.S. and L.M.Glasg.

Dr. George Middlemiss died at his residence, Wear Court, Darlington, on August 4th, and was buried on August 6th, aged 68 years.

He had been in practice forty years in Darlington, and although during the last two years he had suffered from arterio-sclerosis his pluck and vitality refused to allow him to give up work until the day he was stricken down—five weeks before his death. He held a large place in the public eye of Darlington by reason of his long and honourable association with the Volunteer Force, and his work amongst the poor during the thirty years he was medical officer at the workhouse and for a portion of the Darlington Union. The duties connected with these offices he fulfilled with a thoroughness characteristic of the man. He treated the poor with every consideration, and did many personal acts of kindness. A striking tribute was paid to his memory by the large number of Darlington poor present at his funeral.

He was house-physician in the Glasgow Royal Infirmary at the time of Lister's experiments in the antiseptic methods. Absolutely self-reliant, always an enthusiast in his profession, he kept himself abreast of modern methods—an example to many men a good deal younger than himself. He was a prominent member and joint secretary with Mr. Rutherford Morison of the old South Durham and Cleveland Medical Society, and in 1889 was President of the North of England Branch of the British Medical Association, and maintained an interest to the last in the work of the Association.

George Middlemiss took an exceedingly active interest in the volunteer movement, joining the force in 1861, and being present at the great review in Edinburgh in 1862 by Her late Majesty Queen Victoria. The volunteer decoration (V.D.) was conferred on him in 1902, and he retired with the rank of surgeon-colonel of the 1st Volunteer Battalion Durham Light Infantry in 1907. He instructed the first batch of regimental bearers who in 1884 obtained the army ambulance certificate, this battalion being the first in the country to obtain it and permission to wear the Geneva badge. He was an honorary associate of the Order of St. John of Jerusalem in England, and gave a good deal of time to the service of that Order as instructor and examiner of ambulance classes. He was also a prominent Freemason. He had held the office of P.J.G.W. of the province of Durham, and was also P.M. of University Lodge, Durham, and Marquess of Ripon Lodge, Darlington.

A cheery, kind-hearted man, full of animal spirits, he was one of the old type of family doctors who practised modern methods, and his loss will be much felt by his old patients. Honest and straightforward to the core, and possessed of great moral courage, he offended some where a more timid man would have succeeded.

WILLIAM GAYTON, M.D.Brux., F.R.S.Edin.,

late Medical Superintendent, North-Western Fever Hospital.

We regret to record the death, on August 7th, of Dr. William Gayton, a medical man who had a very extensive clinical experience of zymotic disorders and enjoyed the distinction of being the first medical superintendent ever appointed by the Metropolitan Asylums Board. His death was due to angina pectoris and took place at his residence in Finchley in the 75th year of his age. Dr. Gayton was born in Church Street, Spitalfields, where his father was in practice. He received his professional education at the London Hospital, and became L.S.A. and M.R.C.S. in 1860, L.R.C.P. Edinburgh in 1863, M.R.C.P. Edinburgh in 1875, and M.D. Brussels in 1876. He was also a Fellow of the Royal Society of Edinburgh, and had been admitted to the Bar.

On first leaving the London Hospital he was occupied for a few years in private practice, and was then selected by the newly constituted Metropolitan Asylums Board to take charge of its hospital for small-pox at Homerton. He remained in this position for some thirteen or fourteen years, and during their course did allied work of an important character in connexion with the ship for small-pox patients stationed at Greenwich and the camp established at Darenth during the severe outbreak of small-pox in 1881. His next appointment was to the North-Western Fever Hospital at Hampstead. Of this he remained in charge for some twenty-two years, and as one of the board's official lecturers on the subject of contagious fevers became well known to many medical men other than those at work in his immediate neighbourhood.

He retired from the service some nine years ago, and having a few years previously been placed on the Commission of the Peace for London, spent a good deal of his time in the performance of work more or less directly connected with this position. Among other things he served as a member of the Pentonville Prison Committee, and on the Lunacy Committee, and made a hobby of the study of Roman law. In earlier days he had given valuable evidence before the Hospital Commission of 1882, and before the Vaccination Commission of 1889.

He was the author of a work on *The Value of Vaccination as Shown by an Analysis of 10,403 Cases of Small-pox*, which went through three editions, and also of a book entitled *Notes on Small-pox and Its Treatment*. In addition he wrote the article on small-pox in Quain's *Dictionary of Medicine*, and was the inventor of a special form of ambulance for the transport of fever cases.

In private life he took a very keen interest in Freemasonry, being the founder of the London Hospital Lodge, grand registrar of the Essex Hope and Unity Chapter, and at three separate lodges had served a term of office as master. Dr. Gayton was married, and is survived by his wife, as also by four daughters and a son, the latter being at present senior assistant medical officer of Kensington Infirmary.

JOHN CHARLES MITCHELL, M.B., C.M.Edin., D.Sc., Johannesburg.

The death of Dr. John Charles Mitchell, which took place on July 24th at Johannesburg, South Africa, brings to an end, at the early age of 42, a life of great promise and of no small accomplishment. He was born at Gilmerton,

near Edinburgh, where his parents still reside, and was educated at George Watson's College and the University of Edinburgh. After passing his second professional examination in medicine, Mr. Mitchell for a time devoted himself to science, which held then, as indeed always, a large share of his affections. He took the degree of B.Sc. in 1891 and that of D.Sc. in 1896; meanwhile he was acting as lecturer in zoology in the Agricultural College at Ghizeh, near Cairo, and had made a communication (in 1892) to the Royal Society of Edinburgh on the lateral sense-organs of elasmobranchs. Just before leaving Egypt he carried out an investigation regarding the edible fishes of Lake Menzaleh, and his services were recognized by the Khedive, who decorated him with the Order of the Medjidieh. He returned to Edinburgh in 1898, and finished his medical studies, graduating M.B., C.M. in 1900. At the same time he gained the M'Cosh Graduate's Bursary, by means of which he was able to study at the Pasteur Institute in Paris. He had already (in 1899) gained the Special Certificate in Tropical Diseases and Bacteriology of the University of Edinburgh. Dr. Mitchell next acted as Medical Officer for Plague in Cape Colony when that disease was prevalent there in 1901; later he was made Government Pathologist and Bacteriologist for the Transvaal, but his health was already weakened by attacks of malaria which he had contracted in Egypt, and in 1911 he was led to resign this appointment and to busy himself in his own laboratories in Johannesburg. Dr. Mitchell leaves a widow and five children.

THE LATE MR. WALTER WHITEHEAD.—The remains of the late Mr. Walter Whitehead, whose death was announced in these columns last week, were cremated at the Manchester Crematorium on August 23rd. In addition to Mrs. Whitehead and other members of the family, the funeral service, which was conducted by the Rev. J. B. S. Barrett, Vicar of Pendlebury, was attended by representatives of medical and other institutions with which the late Mr. Whitehead was associated, included Professor Stirling (Dean of the Faculty of Medicine, Victoria University), Mr. H. H. Smith-Carrington and Mr. W. Stones (Board of Management of the Manchester Royal Infirmary), Mr. F. H. Westmacott and Dr. F. Craven Moore (Medical Board, Royal Infirmary), Dr. J. Prince Stallard (St. Mary's Hospital for Women and Children), Mr. N. W. Smith-Carrington (Christie Hospital), Dr. Louis Savatard and Dr. Graham Steell (Hospital for Skin Diseases), Mr. Wilfred Becker (Lock Hospital), Mr. F. H. Smith-Carrington and Mr. G. Whittaker (Manchester Dental Hospital), and Dr. W. Coates, C.B. (East Lancashire Division Royal Army Medical Corps Territorial Force, of which the late Mr. Whitehead was honorary colonel). Among others present were Dr. Reynolds, Dr. J. Brassey Brierley, Dr. E. Luckman (Altrincham), Dr. Worswick, Dr. Owen Jones (Bowdon), Dr. J. Howson Ray, Dr. Hamill, Dr. Colin Campbell (Southport), Dr. P. G. Mould, Dr. Morrish (Penmaenwawr), and Dr. Tytler.

Universities and Colleges.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved in the subjects indicated:

SURGERY.—*A. C. Brown, *†T. H. Cresswell, V. H. M. A. Dangerfield, *†H. G. Marshall, *H. C. Wright.
MEDICINE.—*†D. T. Corke, †P. R. Cross, V. H, M. A. Dangerfield, *T. H. Edey, *D. Havard, *†A. R. Jennings, *†H. G. Marshall, †O. Marshall, †C. E. Reckitt, *†W. V. Tothill, *†H. C. Wright.
FORENSIC MEDICINE.—D. T. Corke, V. H. M. A. Dangerfield, A. R. Jennings, H. G. Marshall, G. W. Maw, S. Rawlinson, W. V. Tothill, H. C. Wright.
MIDWIFERY.—J. C. P. Bayley, A. R. Jennings, H. G. Marshall, W. R. Sadler, H. C. Wright.

* Section I. † Section II.

The diploma of the society has been granted to Messrs. T. H. Cresswell, P. R. Cross, H. G. Marshall, O. Marshall, and C. E. Reckitt.

THE third International Pharmaceutical Exposition will be held at Vienna in September under the honorary presidency of Dr. Zenker. The British Representative on the Honorary Committee is Mr. E. White, of London.

Medical News.

A COMMITTEE of medical men and sanitarians has been organized in Italy for the purpose of investigating *de visu* the miracles alleged to be performed at Lourdes. The party will start from Ventimiglia on September 5th.

THE usual courses of instruction in hospital administration for the diploma in public health will be given at the North-Western Hospital, Hampstead, N.W., by Dr. J. MacCombie, and at the Grove Hospital, Tooting Graveney, S.W., by Dr. J. E. Beggs, commencing in the first week of October. The fee for the course is three guineas, and full particulars can be obtained on application to the Clerk of the Metropolitan Asylums Board, Embankment, London, E.C.

THE late Sir Jonathan Hutchinson left estate of the gross value of £92,269, of which £39,226 is net personalty. He left his museums at Haslemere, Selby, and Chenies Street, London, to trustees, to whom he had explained his wishes as to their disposal. He left the following direction in his will: "I desire to be buried in the same grave with my late beloved wife. The inscription on the gravestone is to be in addition to the names and dates, 'A Man of Hope and Forward-Looking Mind.'"

A STAINED-GLASS window will be unveiled at the ancient church of St. Martin, Ashton-upon-Mersey, on September 7th, to the memory of Jeremiah Renshaw, surgeon, who practised in Ashton-upon-Mersey and Altrincham from 1831 to 1862. Mr. Renshaw was one of the early members of the British Medical Association, in the time of its founder, Sir Charles Hastings. The window has three panels: in the centre is a figure of St. Martin, dividing his coat with the beggar, and on either side are St. Cecilia and St. Elizabeth. The window has been erected by his son, Dr. Charles J. Renshaw, late President of the Lancashire and Cheshire Branch of the Association, and is by Percy Bacon and Brothers, of London.

THE fifth annual report of the Eugenics Education Society states that during the year 1912–13 several new branches were founded in different parts of the empire, including one in Manchester, two in New Zealand, and one in Sydney, the last being the first branch of the society to be formed in Australia. In addition, the Birmingham Society for the Study of Heredity has recently become affiliated to the society. The report expresses the opinion that the International Eugenics Congress held in London gave considerable impetus to the eugenic movement in other countries, the committees composed at the time of the congress by the leading eugenists of each country having formed, in four instances, the nucleus of permanent organizations for the purpose of directing eugenic propaganda and research. The effect of the congress upon the eugenic movement in England was equally satisfactory, whilst one immediate result of the awakening of public interest in the question was a sudden increase in the work of the society, which rendered necessary a removal into larger premises. Rooms were accordingly taken in Kingsway House, Kingsway, W.C., into which the staff of the society moved in December last. In order to meet the demands for information constantly received from the masters and mistresses of elementary and secondary schools, the society organized a special conference for educational authorities, which was held at the University of London on March 1st, and was largely attended by headmasters and mistresses from every part of the kingdom. A medical committee and a research committee were also founded, and the former met for the first time in December, 1912, when a subcommittee was appointed to discuss the methods of diminishing the ravages of venereal diseases. A library of eugenic literature for the use of members and associates is now in process of formation, and the society has recently made arrangements for a course of lectures on eugenics to be held at the Imperial College of Science and Technology, South Kensington, where students may train and qualify as lecturers on this subject.

Medico-Legal.

WORKMEN'S COMPENSATION ACT.

Report of Medical Examiner.

IN a case heard recently in the Court of Sessions, Edinburgh, Lord Guthrie found against the employers on the ground that they had, in error, refused to furnish the complainer with a copy of the report of the doctor who had examined him on their behalf.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

MANUSCRIPTS FORWARDED TO THE OFFICE OF THIS JOURNAL CANNOT UNDER ANY CIRCUMSTANCES BE RETURNED.

CORRESPONDENTS not answered are requested to look at the Notices to Correspondents of the following week.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

TELEGRAPHIC ADDRESS.—The telegraphic address of the EDITOR of the BRITISH MEDICAL JOURNAL is *Aitiology, Westrand, London.* The telegraphic address of the BRITISH MEDICAL JOURNAL is *Articulate, Westrand, London.*

TELEPHONE (National):—
2631, Gerrard, EDITOR, BRITISH MEDICAL JOURNAL.
2630, Gerrard, BRITISH MEDICAL ASSOCIATION.
2634, Gerrard, MEDICAL SECRETARY.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

ANSWERS.

BRUSHING THE TEETH.

DR. HORACE DOBELL, M.D.(ret.) (Parkstone Heights, Dorset), writes: Will you permit one, who does not pretend to any special knowledge of dentistry, to ask those who do, what appears to him to be a most important question, namely, whether they are not making a serious mistake in promoting so much tooth brushing, especially for young people, as is now the fashion? Throughout the animal kingdom it is the rule that the part of the teeth to be employed in mechanical work shall be protected by a coat of enamel, and that the part of the tooth not so employed shall be free from enamel but protected by gum. Now, although from original flaws in the enamel and from portions being removed by mechanical accidents, caries does sometimes begin in the enamelled portion of the tooth, I believe it to be a general rule that it begins in the unenamelled portion, that is, the portion protected by gum. In young people the small milk teeth are easily so protected; but, as the second teeth come forward it is important that every encouragement should be given to the larger development of gum necessary to protect them. May I suggest that brushing the teeth, which involves brushing the edges of the gums, interferes with such development, and spoils it when it has taken place by wearing it down? I think, therefore, that, for the young at least, all that is necessary or advisable is to well rinse the mouth after meals.

LETTERS, NOTES, ETC.

DR. W. A. SOMERSET (Wolverhampton) states that he recently recommended that the milk for the use of an infant on a voyage to Australia via the Cape should be sterilized in England and kept in cold storage on board the boat. He has now heard that the experiment proved quite satisfactory, and that the milk was in good condition two months after leaving Wolverhampton.

AN ELECTUARY.

MAJOR C. MADDOCK, I.M.S. (Civil Surgeon, Ahmednagar), writes: A Hindu, aged 40, was admitted to hospital for pain in the left side of the chest and dyspnoea on exertion. This pain and shortness of breath had begun seven months earlier without apparent cause and gradually became worse. His relations, therefore, who suspected his wife, with whom he was not living on exactly friendly terms, called a family council and asked her what she had given to her husband to cause this disease. She admitted to having mixed in his food the following prescription: Powdered glass, sulphate of copper, hairs of a cat, moustaches of a tiger, pieces of lizard. The family council, being quite satisfied with their detective work, recommended the husband to go to hospital for treatment, and he came demanding the antidote for the above electuary. He would only stay in hospital twelve days and left quite satisfied that the poison would no longer do him any harm, as he felt so much better.

HERPES AND VARICELLA.

DR. HOWARD WISE (London, W.) writes: With reference to the notes in this week's BRITISH MEDICAL JOURNAL on herpes zoster by Drs. Cressy and Halstead, I should like to say that I have seen several cases during the last week or two. Moreover, for years past I have noticed that a number of cases always occur about September. There have also been a few seen usually about February or March. I have not so far seen it associated with varicella, and I have never yet seen two cases in one household.

DR. EDWARD J. BRUCE (North Leverton, Lincoln) writes: On April 29th a man called, complaining of acute pain in his right side, which on examination I found to be due to a sharp attack of shingles. The attack cleared off in a week to ten days. On May 14th—fifteen days after—I was called in to see his child aged 12 months, and found him to be suffering from a typical attack of chicken-pox. He had then been ill two days. I was somewhat puzzled as to where the infection came from, as there were no cases to my knowledge in the neighbourhood. There is now no doubt that the child was in some way infected from the father, and an examination of the matter from the pustules and blood (by cultures, etc.) from persons suffering from the two diseases might lead to some interesting bacteriological discovery. The fact that there are so many cases of herpes zoster occurring at the present time, followed by varicella in members of the same family, leads one to think that it is due to a specific micro-organism and not to a simple inflammation of the nerve trunks as is generally supposed. I find an attack of herpes clears up sooner if the patient is put on small doses of sodium salicylate, combined with local treatment.

DR. D. OWEN WILLIAMS (Glandovey) writes: I have recently attended a case of herpes zoster in a male, aged 23. It was during the hot spell of weather in July. There was a band of herpes about 6 in. wide, extending on the right side from the spine to the front of the abdomen, along the course of one or two of the lower intercostal nerves. Under suitable treatment it soon recovered, but so far it has not been followed by any case of varicella, either in the house or near by. Previous to this I attended several cases of varicella in an epidemic about five miles from this case, but I do not think that there was any association between them. If it were not for the smarting pain and the unilateral character of the herpes one would think that it was a case of chicken-pox, so much alike were the spots in appearance. This person has been subject to a sore throat and subacute rheumatism. I have seen cases of herpes zoster at different times and places, but never yet associated with varicella, but this case struck me by the similarity of the spots.

DR. G. E. ROBERTS (Twyford, near Winchester) writes: Recently there occurred in my practice a case of shingles of the scalp in an old patient who had previously met with an accident to his head. About a fortnight afterwards a child in the same house developed chicken-pox. There was no other case of chicken-pox at the time in the neighbourhood from which the child could have contracted the disease.

A POSSIBLE CASE OF PELLAGRA.

DR. A. M. PILCHER (Mosborough, Sheffield) reports the following case as possibly one of pellagra. The patient is a female, aged 18. Her mother died of pulmonary phthisis, also her mother and two sisters. The patient's only brother and sister are alive and working, though very delicate and thin. The patient always slept with her mother (only one bedroom) till the age of 12, since then, being motherless, other people adopted her, and she has lived in very comfortable circumstances, and for twelve months up to February, 1913, was more or less in a draper's shop. She never ailed till February, 1913, when she was treated for appendicitis, during this illness and since she has had more or less persistent diarrhoea. In June she got cold and has had a cough ever since, she is now very emaciated, and in the third stage of pulmonary phthisis (T.B. positive). I think her appendicitis was tuberculous, as she has now tuberculous peritonitis and also infected mesenteric glands. Towards the end of July, when I began to attend her during her ordinary doctor's holidays, her hands, wrists, and face, were very sunburnt, but I attached no importance to this as she had been exposed in the garden during glorious weather; but in the middle of August I observed desquamation of the backs of the hands and about 2 in. of the wrists; the desquamation was very coarse in large pieces and very yellowy brown, leaving the skin below quite parched, the face was not so bad owing to her large hat, but there was marked pigmentation under the eyes and in upper sterno-mastoid region and also desquamation. The skin all over the body is always sallow and rough due to sudamina. It might be thought the cases published in BRITISH MEDICAL JOURNAL made me call the case pellagra; but I certainly have not seen a case like this before, and if I had I should not have known what to call it. Beyond the ordinary irritability and worrying, etc., of such tuberculous cases, there are no mental symptoms, no spinal symptoms. There is no trace of maize eating, and, beyond an occasional walk by a running stream in the neighbouring woods, nothing to excite suspicion from flies.

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